FEBRUARY, 1953

Telephone Engineer and Management

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THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

- **Maintenance Pays Off, *by W. M. Driggs***
- **Microwave Channellizing, *by L. E. Adler***
- **Modern Central Office Maintenance, *by John S. Reed***
- **The Management Forum • Questions & Answers • Industry News Briefs**

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FEBRUARY, 1953 VOL. 57 NUMBER 2

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FRONT COVER:

Photo of "a telephone man at work" could apply to the cover photo of your February TE&M. The desire for perfect workmanship is reflected in the face of New York Tel. Co. lineman Ned Greenbaugh as he carefully places cable suspension clamp on through bolt for permanent attachment of strand to pole. — Photo by C. Wesley Brewster, Syracuse, N. Y.

Published monthly by Telephone Engineer Publishing Corp. 7220 Sheridan Road - Phone Rogers Park 4-3040 - Chicago 26, Illinois.

Volume 57, Number 2. Published monthly by Telephone Engineer Publishing Corp. Office of Publication, Rochelle, Ill. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Ill. Subscriptions: U. S., Cuba, Mexico, $3.00 per year; Canada $3.50 in all other countries, $5.00. Single copies, U.S.A. 35 cents. Entered as second class matter at the post office at Rochelle, Ill. under the act of March 3, 1879.

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GraybaR TELEPHONE NEWS

"AND STILL NOT ENOUGH CIRCUITS"

This is a picture of a problem set up by today's fast-growing telephone needs . . . a problem typified by overloaded lines like this that still fail to provide enough circuits.

Yet, there's a simple answer — additional voice circuits through installation of multi-channel carrier equipment.

As an active partner in carrier development and improvement since its beginning, Graybar today has a most complete line of modern equipment available. Some of this equipment is shown below, but for any carrier need it will pay you to consult your near-by Graybar Telephone Specialist — he'll be glad to help solve any problem concerning additional or better quality circuits. 317-222

LYNCH B-37 TELEPHONE CARRIER

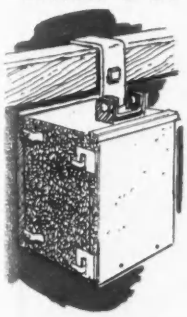
A completely self-contained terminal, the B-37 operates on the frequency-shift principle and assures positive operation under adverse weather and noise conditions. Available in operating frequencies between 3.5 and 62 kcs — five channels as specified, each a self-contained unit with its own power supply and signaling facilities for dial or ring-down operation. Repeaters and automatic regulators are available where required.

Exclusive Lynch construction means substantial savings in vertical rack space and lowered installation and maintenance costs. Hinged front cover provides ready access to tubes, fuses, monitoring jacks, relays and all controls.

LYNCH B-83 SIGNALING UNIT

Designed to provide positive, low-distortion dial signaling for existing Western Electric Type H-1 carrier terminal installations. Steep-slope band elimination filters assure negligible restriction of frequency response. Operating frequencies: W-E direction, 7.15 kcs.; E-W direction 11.5 kcs. (approx.) Keying circuit is such that unit transmits dial pulses (on a carrier-on-off basis) with extremely low distortion. Unit will not interfere with subsequent expansion of the system to include additional higher frequency channels.

LYNCH B-61 OUTDOOR LINE FILTER ASSEMBLY



A simply-installed, weatherproof assembly for use where line filters and associated equipment must be installed on outdoor poles.

Though unusually compact (10¼"x 10½"x 8½") the internal mounting area also provides room for inclusion of repeat coils and balance networks in addition to the two filters. One section of the assembly is sealed water-tight to protect filters and other components.

AND EVEN BEYOND THIS . . .

2 more important carrier equipment developments designed to further lower the cost per voice channel — check your Graybar Representative for details on these soon-to-be announced units.

1. **Lynch B-99 Compressor-expander — for improved speech-to-external noise ratio.**
2. **Lynch B-60 and B-60J Telephone Carriers — high frequency carriers with up to 12 channels.**

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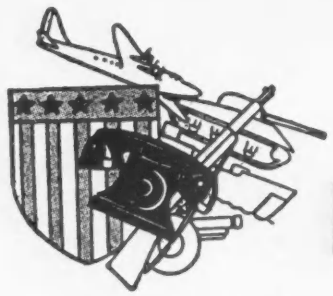

Across The EDITOR'S DESK

CONGRATULATIONS to *Milt Stewart*, president of the Standard Telephone Co., Cornelia, Ga., on his new employee Newsletter. Issue Number One of "THE STANDARD BEARER" really sparkles. The Standard Telephone Co. family is pretty well spread out over six quite mountainous counties; which makes it hard for employees to know each other, or get together to discuss policies, methods, ways and means of making service better and worth more to the community. The Newsletter will help bridge both gaps. Milt tells us, "We want it to bring our little family closer to each other and to help us keep posted on our doings. At the same time, we hope to use it to learn more about the business we are in and to bring ideas and methods by which we can do a *good* job still *better*."

WE WERE pleased to read that *P. P. Anderson*, president of the Farmington (Ill.) Telephone Co. and a long time member of the Independent Telephone Pioneer Association (ITPA), has presented his personal collection of old telephones and switching equipment to the Theodore N. Vail chapter of Telephone Pioneers of America for its museum in Chicago.

In appreciation of this gift, Mr. Anderson was given an honorary membership in the Telephone Pioneers of America.

Mr. Anderson, who is 80, began collecting such equipment as a hobby more than 50 years ago, and had accumulated some 100 items.

Several of the items are most unusual, and include some which are believed to be the only ones in existence, such as an 1880 switchboard, manufactured only two years after the invention of the telephone; an early dial telephone, where one of 99 telephones could be reached by setting three dials on the face of the telephone; a "papa-listens-while-mama-talks" telephone with two receivers; and an instrument used around 1895 which operated with two tin cans and resin string without the aid of any battery.

The collection will be exhibited throughout Illinois at telephone company offices.

THANKS TO THE *Washington Independent Telephone Association Newsletter* for the excellent item on the Independent Telephone Pioneer Association (ITPA) which appeared Jan. 29. The message regarding ITPA membership deserves reprinting, and here it is — "*If you have been in the telephone industry not less than* 15 *years, you are eligible for membership in the Independent Telephone Pioneer Association. This is a national association embracing every kind of telephone activity, all 'who at the time of application are employed in the Independent telephone industry, its associated interests, the communications branch of the Armed Forces, or as private branch exchange operators, or who have been retired' . . . You will find that membership in the ITPA is rewarding and inexpensive. The dues are* $3.00 *a year. There is no other expense except the cost of attending, if you wish, one or two meetings every year. You will meet people who have engaged in every phase of telephone activity in every part of the United States, with whom you will have much in common and whose company will be an interesting experience. You will receive an annual handbook containing the names of every Independent Pioneer.*"

If you are interested, write to *Mrs. Mayme Workman, Executive Secretary, P.O. Box* 1179, *Springfield, Ill.*

CONGRATULATIONS to *Mrs. Esther F. Young*. At 94, Mrs. Young has been reelected to her 43rd year as president of the Columbia (Pa.) Telephone Co. The Columbia company, founded by Mrs. Young's husband in 1896, serves more than 10,000 telephones.

FRANK FORCE, owner-operator of the Force Telephone Co., Wheaton, Kans., is to be complimented for the good service he has provided Wheaton subscribers. *Douglas Gleason*, secretary of the Kansas Telephone Association, tells us that a few days ago he addressed a meeting of subscribers at Wheaton. In the course of a question and answer period, one of the subscribers praised Mr. Force for the service he has rendered over a 26-year period. At the utterance of the praise the entire group of subscribers burst forth in spontaneous enthusiastic applause. A great tribute to one of Kansas' fine telephone men.

Telephone Engineer

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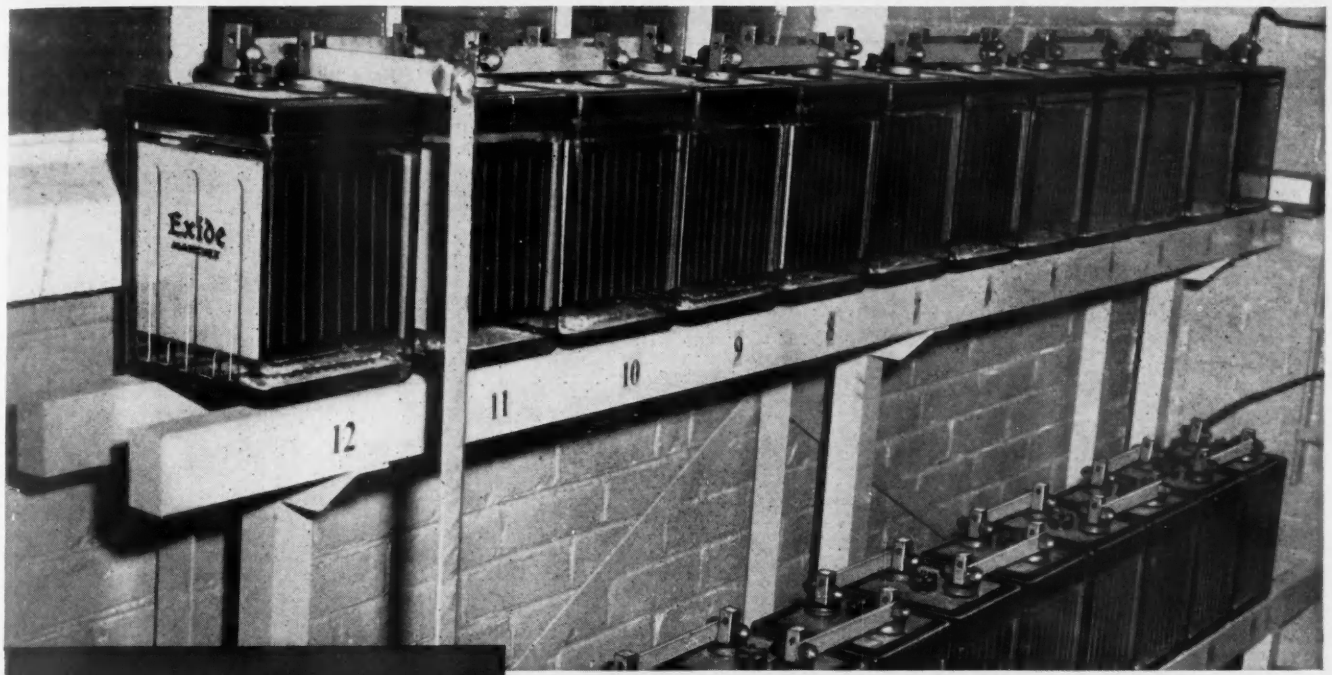
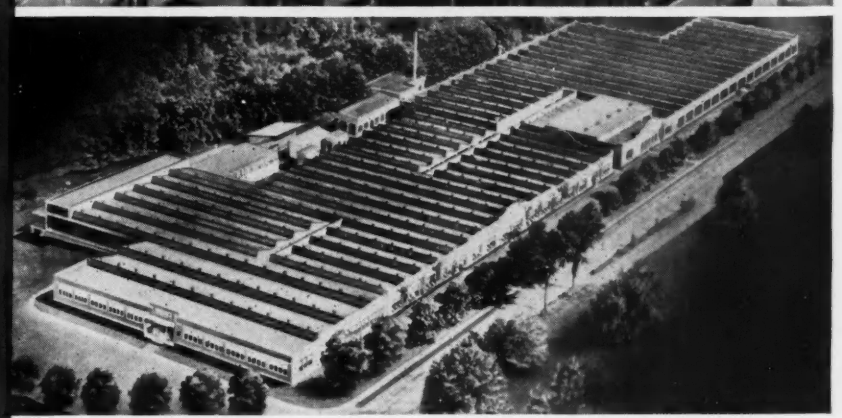


Large PABX System powered by dependable



Jones & Lamson Machine Company, Springfield, Vt. 300,000 sq. ft. of manufacturing floor space.

Exide-Manchex BATTERIES

It's in the big and busy plant of Jones & Lamson Machine Company, Springfield, Vermont. With its many trunk lines and 180 inter-plant lines, this industrial automatic system has a capacity equal to that of the central office of a small independent telephone exchange. Battery power is provided by the Exide-Manchex . . . assuring:

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ADEQUATE RESERVE POWER for emergencies beyond normal needs.

LOW OPERATING COST: Extremely low internal resistance.

LOW MAINTENANCE COSTS: Water required about twice a year. No change of chemical solution during life of battery.

LOW DEPRECIATION: Sturdy, long-life construction, which includes the exclusive manchester positive plate.

GREATER CAPACITY in a given amount of space avoids over-crowding of equipment.

• • •

Various sizes and types of Exide Batteries, up to 100 ampere hours capacity, are available in plastic containers.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 2
Exide Batteries of Canada, Limited, Toronto
"EXIDE" and "MANCHEX" *Reg. T.M. U.S. Pat. Off.*

1888 . . . DEPENDABLE BATTERIES FOR 65 YEARS . . . 1953

In 1950, 6,200,000 poles were treated with wood preservatives . . . 5,380,000, or approximately 90%, were pressure creosoted. There are many reasons why the preponderance of poles, ties, piles and lumber are treated with creosote oil. The chief reason is its low cost per year . . . only creosote has stood the test of time in all types of weather, in alkaline or acid soil, in fresh or salt water.

You won't go wrong in standardizing on *Creosoted* wood . . . . and you'll be right in relying on Republic as your primary source of quality creosoted products.

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NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH
NEWSLETTERS *on Alternate Weeks*

February 15, 1953

Dear Sir:

To simplify its operations & make some economies, FCC announced that number of relatively minor items will be excluded from its weekly reports of tariff material received, starting Feb. 15.

Among tariff changes to be deleted are: revisions in toll telephone & teletypewriter exchange service rate & route guides; changes in message toll telephone & TWX 1st reference lists (points less than 40 miles apart, between applicable rates are different from those computed by block & section method); revisions in traffic arrangements (exceptions to basic operating contracts of Bell System companies); changes in tariffs for telephone companies' private line services, which relate only to new or discontinued points where private line services are available.

* * *

Ohio Public Utilities Commission had no authority under state's laws to make rate increase for Elyria Tel. Co. contingent upon service improvements, Ohio Supreme Court has ruled in upholding telephone company's appeal & remanding case to regulatory agency.

In its order, court declared that "A situation is present where the company needs an increase in rates to attract capital to buy new equipment and to meet increased demands, and the commission says, in effect, 'we will give you the new rates to attract the new capital to purchase new equipment when you show that you have installed the new equipment.' Adoption of such an attitude would hamstring the utility."

Court added, "A public utility commission may not so act as to confiscate the property of a utility, and where it is determined that adequate rates do not exist, any order granting an increase but suspending the same until such time as certain facilities and improvements are provided does have that effect."

Originally, commission granted Elyria company, a class A Independent operating about 15,000 telephones, a rate increase, but after service complaints it reconsidered matter & issued order reinstituting prior rates until certain service improvements were made, & ordering that no further dividends be declared or paid by company without approval of commission.

On subject of dividend order, also appealed, court declared that "Here we have a company with a large earned surplus and which has paid dividends out of either its earnings or such surplus." It went on, "it is apparent that the restrictive powers of the comission with respect to the payment of dividends are confined to cases where there are neither earnings nor surplus. Granting that it may not have been a sound procedure for the

company to divert so much of its net earnings to dividends, it was after all a matter for decision by the company, and the restrictive order of the commission constitutes not only an interference with corporate management but is beyond the statutory powers of the commission."

Court order rejected contentions of company that rehearing should not have been held in Elyria, & that much of testimony should have been found inadmissible in rehearing because it could have been given in original rate sessions.

In its discussion of rate increase restrictions, court declared that Elyria company was rendering "at least fairly adequate service," & had spent over $1,000,000 in past decade for new equipment. "Furthermore," court added, "the company was faced with emergency conditions which created, and still create to some extent, difficulty in procuring new equipment."

Elyria company was represented by Columbus law firm of Power, Griffith & Jones, of which General Tel Corp. Pres. Donald C. Power is senior partner, and Horan & Ashenbach.

* * *

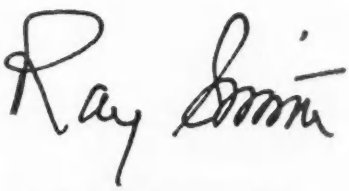
Commissions: – Richard E. Mittelstaedt has been renamed for another six-year term on Calif. Public Utilities Commission, & has been re-elected pres. of commission for 6th consecutive year. In Idaho, George R. Jones has been elected pres. of Public Utilities Commission for period from Jan. 1, 1953 to Dec. 31, 1954. Mr. Jones & Commissioner H. C. Allen were reappointed to commission by Gov. Len Jordan. In Mass. David M. Brackman has been named chairman of Department of Public Utilities, succeeding Thomas A. Flaherty, who is continuing as member of that body. In Montana, John E. Henry has been appointed to Board of Railroad Commissioners & designated chairman, succeeding Paul T. Smith. Warren Buchanan, Rockville, Ind., appointed chairman of Indiana Public Service Commission.

* * *

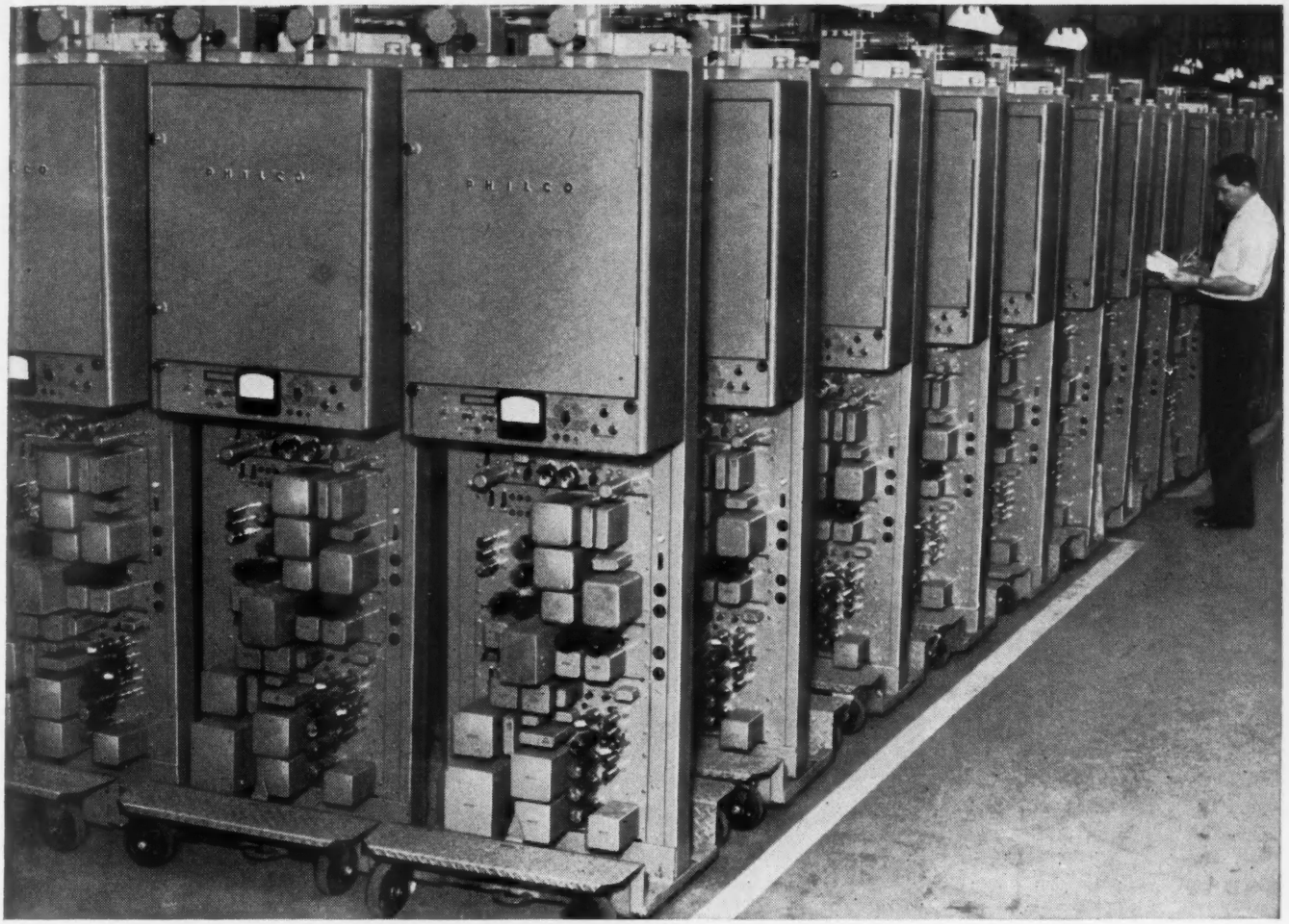
Study of Virginia constitution's provision authorizing free utility services, including telephone & telegraph, for members of state Corporation Commission, is now under way by committee of Virginia Advisory Legislative Council. Proponents of present ruling declare no utility can offer members "favors" in form of free service if it is already provided for in state constitution.

* * *

Large financing requirements, resulting in sharp increase in number of outstanding shares, with continuance of customary dividends in communications industry during calendar year 1952, resulted in $41,000,000, or 9%, increase in cash dividend payments by corporations issuing public reports over 1951 dividends, US Commerce Department's Office of Business Economics announced Jan. 22. Publicy reported cash dividend payments for communications industry totaled $511,900,000 for 1952, as compared with $470,600,000 previous year.



Ray W. Smith, Editor



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Philco leads the world in mass production of quality microwave equipment to meet modern industry's demands for relay systems of the highest reliability and performance.

Philco microwave components meet most JAN (Joint Army-Navy) specifications without any changes in circuitry, thereby permitting other users of microwave communications equipment to have the built-in reliability required by the Armed Forces. That is why commercial users of Philco microwave equipment include such famous names as American Telephone & Telegraph Co., Santa Fe Railway System, Bonneville Power Administration, Platte Pipeline Company and many others.

Where quality and reliability are important, look to Philco . . . world's leading manufacturer of microwave equipment!

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"Step-by-Step" Across A

Shown at right is typical Step-by-Step Installation

In providing modern dial equipment to the telephone industry, KELLOGG now furnishes Federal's Step-by-Step Dial Switching System as well as KELLOGG Crossbar. Federal Step-by-Step equipment, sold exclusively by KELLOGG, has proved exceptionally reliable and economical. This rugged Step-by-Step equipment is designed and built for—

- ***Trunking Flexibility***
- ***Ease of Maintenance***
- ***Simplicity of Equipment and Circuits***
- ***Compact, Space Saving Arrangement of Equipment***
- ***Ready, Low Cost Expandability for Increased Station and Traffic Requirements***
- ***Long Life***

ssAmerica...

KELLOGG NOW PROVIDES FEDERAL STEP-BY-STEP SWITCHING SYSTEMS FOR LARGE AND SMALL EXCHANGES

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Indiana Steel & Wire Company

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National Telephone Supply Co.

Newman Manufacturing Company

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Raytheon Manufacturing Company

Reliable Electric Company

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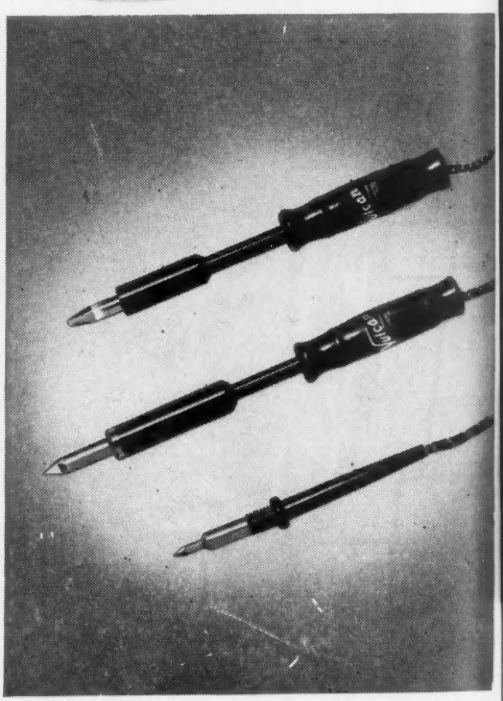
Schauer Manufacturing Corp.

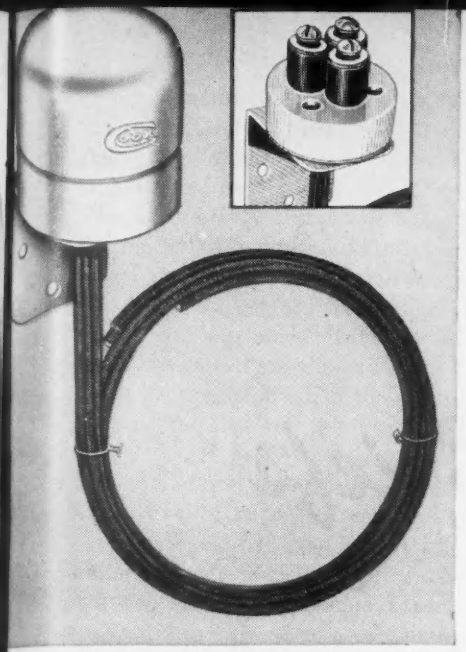
Telkor, Inc.

Vulcan Electric Company

Reliable-Economical! "Eveready" "Columbia" "Gray Label" telephone dry cells give you dependability, plus economy thru higher sustained voltage and extra service life. NATIONAL CARBON COMPANY, a Division of UnionCarbide and Carbon Corp.

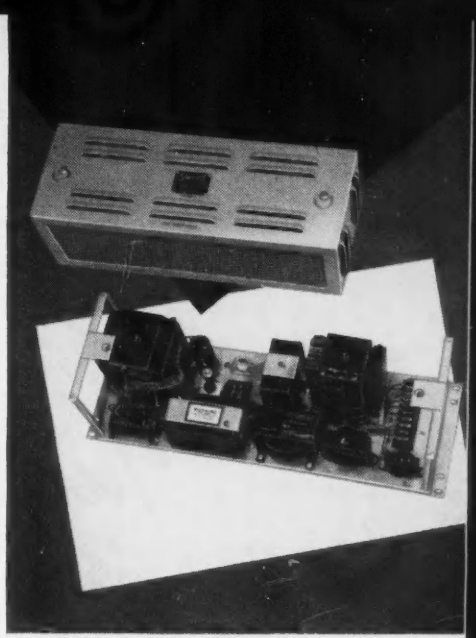


You'll Find Soldering is Easy .. workmanship neater with famous Vulcan Soldering Irons. Available in five sizes—either plug or screw tip. The high-powered heating element assures even proper heat and long service. VULCAN ELECTRIC COMPANY.



The Hi-Cap Power Cross Protector is designed for use where communication and power circuits of higher voltage occupy same wood pole. This protector is capable of carrying power currents until power breakers open. Made by COOK ELECTRIC CO.

Improve Your System with Copperweld. Non-Rusting Line Wire provides the best conductance of any high strength conductor. Has great strength for safe, long-span lines —plus the ruggedness to withstand severe weather. COPPERWELD STEEL CO.



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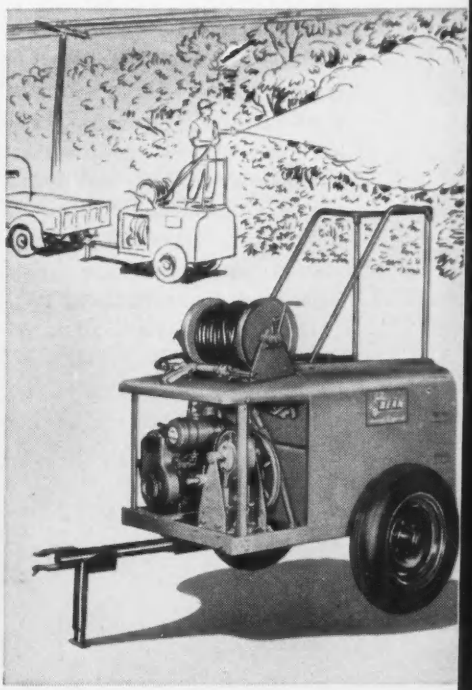
Your Battery Problems Are Solved when you put Gould Plante' and Flote' Batteries to work. Unique features of design cut maintenance and charging costs, lengthen life and reduce replacements. Made by GOULD NATIONAL BATTERIES, INC.



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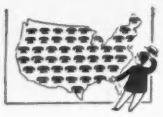


The editors of Industry Briefs will welcome news of your company. Send items direct to Telephone Engineer Publishing Corp.

Industry News Briefs

New Facility Applications Set New 1952 Record

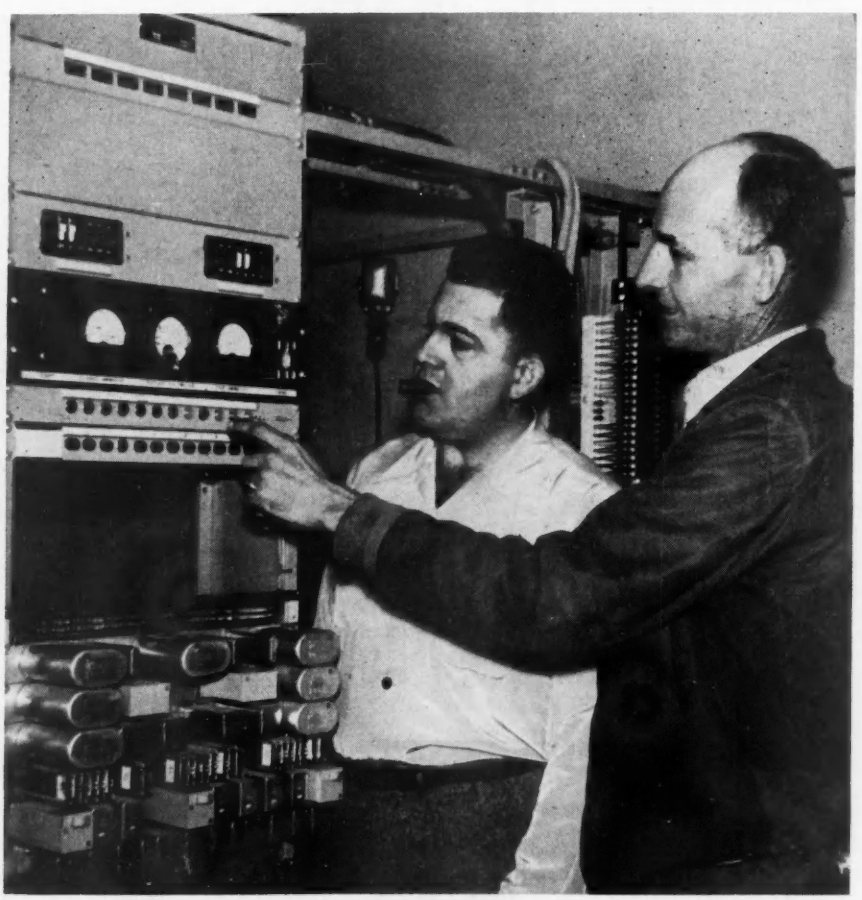
APPLICATIONS for telephone facilities set a new record, the Federal Communications Commission pointed out in its annual report to Congress. During the past fiscal year, the Commission said, it granted 323 applications for authority for construction, lease, or acquisition and operation of wire and cable toll facilities for use in connection with interstate and foreign telephone services, compared to 218 granted during fiscal 1951.

Due to the heavy load on facilities, the FCC pointed out, the Bell System's speed of service was slightly slower for toll calls in 1951, the last full year reported. The figure was 1.8 minutes, or 14 seconds slower than 1950, the year the Korean war started. Of the total toll calls handled, 93% were completed on a "no hang-up" basis.

The report said that the Commission, within the limits of budget and staff availability, gave technical assistance to states and municipalities in connection with Bell System rate increase requests. The assistance, the report declared, was generally in the form of consultation in Washington and correspondence of specific questions of "mutual concern." It also declared that the Washington metropolitan area interstate rate case, in which the Chesapeake & Potomac Telephone Cos. have asked to be relieved of detailed reporting requirements, is "currently receiving attention."

It was also stated in the report that "As a result of changes introduced into the income tax laws by the excess profits tax act of 1950. AT&T commenced filing consolidated federal income tax returns for itself and those of its telephone operating subsidiaries eligible for inclusion in such returns. The consolidated basis of filing necessitates an allocation of the consolidated tax liability among the companies included in the return. There are a number of methods of allocation.

"The method adopted by the Bell System is essentially allocation on the basis of source of consolidated



The Lincoln-Desha Telephone Co., Inc., Star City, Ark., cut over its exchange at Gould, Ark., to automatic operation on Jan. 15. Shown above are: Mayor Sam Failla, Jr., (left) of Gould, and company president, C. T. Adair.

return taxable income, with a provision that no subsidiary shall bear more taxes than it would have, had it continued to file a separate return. The staff of the Commission discussed the matter with representatives of the AT&T and also with representatives of state regulatory commissions. While the questions had not been finally resolved at the close of the year, it appeared that no changes may be required at this time in accounts of the Bell System companies, but that they would undertake to make available periodically to the various regulatory bodies full information on the tax allocation, including the effects on income taxes of the parent and each subsidiary of apportioning the corporate debt of the parent AT&T among the subsidiaries before computing the tax allocations."

Belcher Heads House Appropriations Group

DONALD R. BELCHER, who retired a few months ago as treasurer of the American Telephone & Telegraph Co., will head a business group of the investigating staff of the House Appropriations Committee, it was announced last month by Appropriations Committee Chairman John Taber (R., N. Y.).

The assignment is considered particularly important in view of the efforts of the Republican leadership in Congress to reduce appropriations and bring about more efficient management of government, with an ultimate reduction in taxes.

Mr. Belcher has long been a leader in civic planning circles, as well as in fiscal matters as exemplified by his length service as AT&T treasurer.

Paris Chapter of A.F.C.A. Formed

A NEW CHAPTER of the Armed Forces Communications Association was inaugurated in Paris, France, at a meeting of the chapter on December 3, 1952, at SHAPE Headquarters, near Paris.

Temporary officers of the Chapter are: Mr. John T. Quinn, President; Major General Francis H. Lanaham, honorary 1st Vice-President; Major General Francis L. Ankenbrandt, Chief Signal Officer, SHAPE 2nd Vice-President; Colonel Glenn Palmer, 3rd Vice-President; Major A. W. Hall, Secretary; Major McNeitt, Treasurer.

When a child and a telephone get together trouble is likely to result — unless of course that child is a student at Liberty Guinn school, Atlanta, Ga. The 330 boys and girls at Liberty Guinn learned the ABC's of telephoning via a puppet movie about a boy and his dog. The dog gets lost, and through correct use of the telephone, the boy owner finally finds his pet. After the cartoon, children at Liberty Guinn got a chance to practice dialing numbers and talking over the telephone. They put into practice what they learned from Mumble Voice, a puppet who didn't talk correctly over the telephone. ***(Atlanta (Ga.) Constitution Photo.)***

General Ankenbrandt, in a brief and eloquent speech extended his welcome and was the interpreter of all present in addressing the Chapter's expression of appreciation to General Lanaham, former Chief Signal Officer of SHAPE, now in the United States, for having been the chief moving spirit in the formation of the new Chapter. General Ankenbrandt then introduced the President, Mr. John T. Quinn, who outlined the objectives of the new Chapter and the particular significance of this first meeting being held, through the courtesy and support of General Ankenbrandt, on the premises of the headquarters of the allied countries of the North Atlantic Treaty Organization.

A large number of American and Allied officers participated in the dinner which was served in the officer's lounge, in an atmosphere of mutual understanding and confidence in the success of the new Chapter.

Among those present in addition to the officers already mentioned were: General Brygoo, French Army, Chief Signal Officer Allied Forces Central Europe and his Deputy Col. Jennings, U. S. Signal Corps; Brig. General Ivan L. Farman, Chief Signal Officer, Allied Air Forces Central Europe; Mr. J. H. Pernice, Head of the Electronics Division NATO Hqs; Group Captain Stevenson; Col. Purviance; Col. Zitzman; Lt. Col. J. J. Fettig; Col. Strassburger, USAF; Lieut. Col. H. A. Vest; Major Decker, and representatives of the Tele-

The first meeting of the Armed Forces Communications Association, Paris Chapter, took place in the Officer's Lounge at Shape Headquarters. Affiably engaged in conversation before the meeting from left to right are: Brig. Gen. Farman, Comm. Gen. AFCE: Col. Strasburger, Maj. Gen. Ankenbrandt, Chief Signal Officer, SHAPE; Col. Purviance; and Mr. John T. Quinn, President of the Paris Chapter. (Photographie SHAPE)

communications Industry including Mr. A. H. de Goede and Mr. Williams of International General Electric Company; Mr. A. de Bondini, Vice-President of International Automatic Electric Corporation; Mr. Postove and Mr. Frank Grennan of the Philco Corp; Mr. Villavazo of R.C.A.; Mr. Smart of Westinghouse.

Lucier Concludes Service With NPA Claimant Agency

RALPH F. LUCIER, who has been serving with the National Production Authority's Communications Equipment Division since last Aug. 18, has completed his assignment with the government mobilization agency and resumed his post as president and general manager of the United Utilities, Inc., companies in Indiana and Ohio.

Mr. Lucier first served the CED as a consultant and was later deputy director and finally director of the claimant agency for the communications industry in the mobilization program. During his period of service he added greatly to the contributions of his predecessors in the claimant agency post in establishing recognition by mobilization planning officials of the essentiality of communications in the nation's defense program.

The most recent modifications of the NPA's Order M-77, covering the communications industry, that resulted in the elimination of much "paper work" for the industry, and the drafting of a definitive program establishing eligibility of firms in the industry for certificates of necessity for rapid tax amortization were among Mr. Lucier's accomplishments during his tenure with the government agency.

Appeal Filed To Block Hoosier Co-op Purchase

DECLARING that the proposed transaction under which the newly-organized Hoosier Telephone Cooperative would acquire the "west side" properties of the John T. Detchon estate would result in a substantial increase in telephone rates, and that the "debt requirements of (Hoosier) in the event of said transfer will adversely affect the ability of (the co-op) to maintain said property and replace the same from time to time and to render good and adequate telephone service to the public," a resident of Attica, Ind., last month filed a court suit to block the sale of the properties to the cooperative.

A number of residents of Attica, the largest town involved in the transaction, had appeared during the Indiana Public Service Commission hearings to oppose commission endorsement of the purchase of the "west side properties by the co-op through a Rural Electrification Administration farm telephone loan."

Since the commission approval of the transaction, Chairman Hugh W. Abbett has resigned, and has been replaced by Chairman Warren Buchanan, Rockville, Ind., attorney.

Last month's complaint, asking that the commission order be set aside, was filed by Donald M. Montgomery, of Attica, in the Fountain Circuit Court at Covington, Ind.

Mr. Montgomery declared that the commission's order is ambiguous and incomplete; that it was not supported by the evidence; that the officers and directors of Hoosier are without experience in operating a public utility; and that the capital structure of Hoosier "consists almost entirely of debt and contains substantially no equity capital, in violation of all accepted standards of sound telephone utility financing."

The complaint also declared that "even after a proposed increase of over 70% in the rates for telephone service, and even after making a liberal estimate of a supposed increase in the number of telephone patrons

(Please turn to page 67)

Telephone service — a necessity for most people — is taxed at a higher rate than most luxuries. Such comparable utilities as electricity, gas and water have NO Federal excise tax on the customer's bill. Only tobacco and liquor are taxed at a higher excise tax rate than telephone service. — (Indiana Telephone News)

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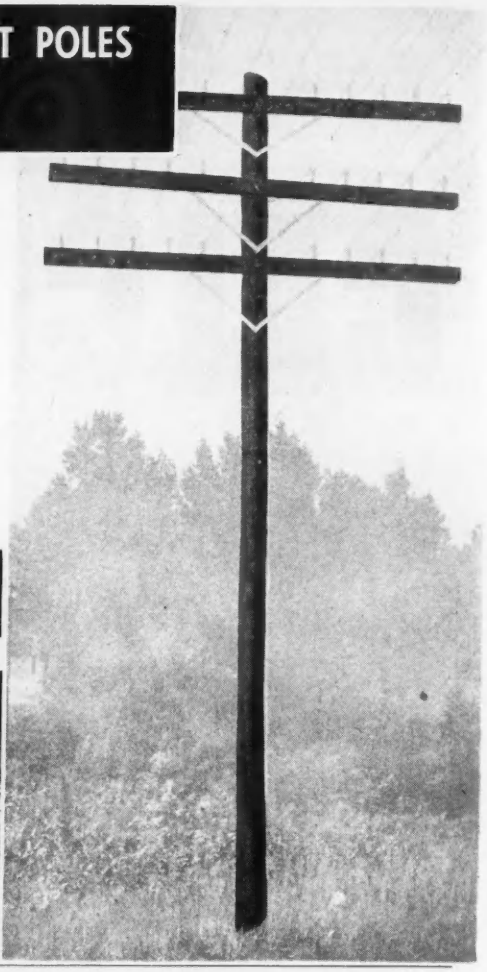

Below are shown two pilot treating cylinders in the Taylor-Colquitt research laboratories. One is six while the other is 26 feet long.

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Continual research with this equipment means increasingly better products—increasingly greater values for the ever growing list of telephone companies that specify Taylor-Colquitt poles.

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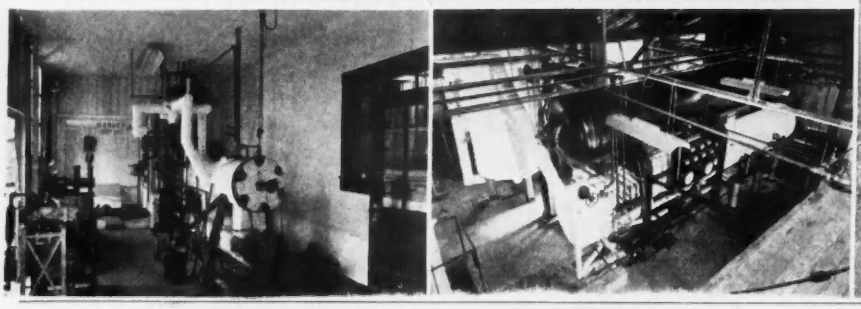
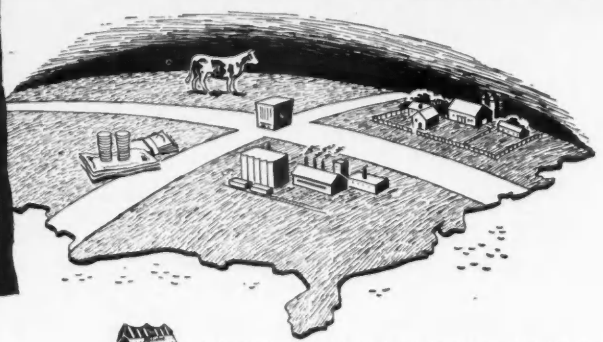
PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA



Centered in the Crossroads of the Nation



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HOTEL WADE HAMPTON.....Columbia

TEXAS
HOTEL STEPHEN F. AUSTIN.....Austin
HOTEL EDSON.....Beaumont
HOTEL BROWNWOOD.....Brownwood
HOTEL BAKER.....Dallas
HOTEL TRAVIS.....Dallas
HOTEL CORTEZ.....El Paso
HOTEL BUCCANEER.....Galveston
HOTEL GALVEZ.....Galveston
HOTEL JEAN LAFITTE.....Galveston
CORONADO COURTS.....Galveston
MIRAMAR COURT.....Galveston
HOTEL CAVALIER.....Galveston
HOTEL PLAZA.....Laredo
HOTEL LUBBOCK.....Lubbock
HOTEL FALLS.....Marlin
HOTEL CACTUS.....San Angelo
HOTEL MENGER.....San Antonio
ANGELES COURTS.....San Antonio

VIRGINIA
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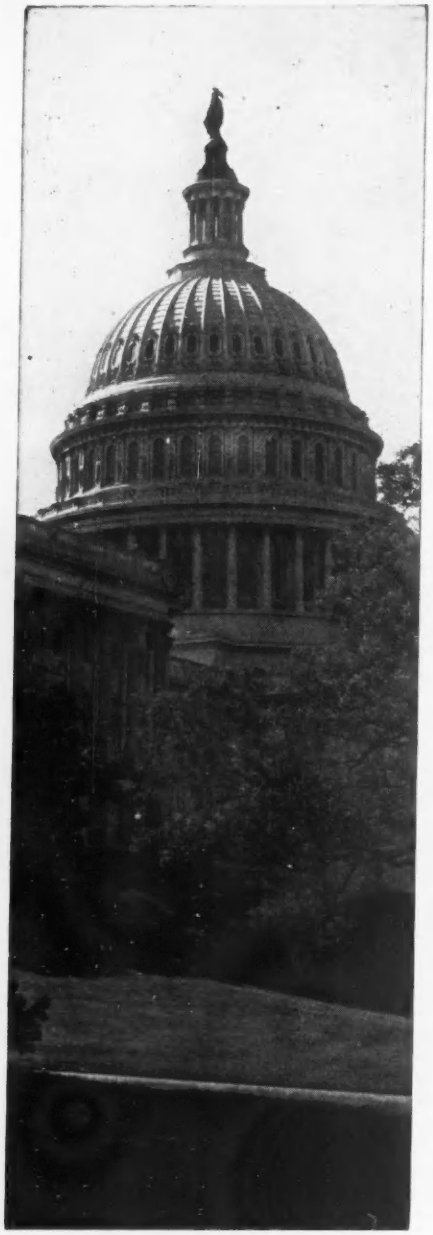


Washington Bureau Reports

By ROLAND DAVIES and FRED HENCK

Secretary of Agriculture Benson displaying high regard for efficient business management and ability to get a dollar's value for a dollar spent . . . Future of materials' control program is still a question mark . . . Theater television case developing into one of most significant cases to be taken before FCC. USITA has offered to cooperate with Bell in providing television-transmission service.

AN OFFICIAL of a farm organization with a record of something less than complete, all-out support for the Rural Electrification Administration's (REA) farm telephone program has been selected by the new Secretary of Agriculture for overall supervision of the REA.

In announcing plans for a sweeping reorganization of the Agriculture Department, describing it as a "swollen bureaucracy," Secretary of Agriculture Ezra Taft Benson named several assistants who will be responsible for groups of agencies with the department.

On the list as assistant to the secretary, in charge of the credit agencies, including REA, was Romeo E. Short, vice president of the American Farm Bureau Federation (AFBF).

The AFBF definitely has been less vigorous in its support of REA than many other farm and similar organizations. In fact, it has engaged in a controversy with the National Rural Electric Cooperatives' Association, a down-the-line REA supporter, over the size of REA's administrative funds — with the AFBF taking the tack that the amount proposed should have been reduced.

A Brinkley, Ark., farmer, who has headed the Arkansas Rice Growers Association for the past decade, Mr. Short headed the Resolutions Committee at last year's AFBF convention, which adopted a resolution generally supporting the intent of the REA rural telephone program.

The resolution of the AFBF convention, unanimously adopted, was as follows: "Rural areas that are without telephone service or which have inadequate service may have relief under the telephone program authorized by Congress. The inadequate service in many areas has been due to unsound or uneconomic attempts to give service.

"It is recognized that telephone service can be provided in rural areas on a sound and enduring basis only when the people in the area support it on an economic basis. We will continue our support of adequate appropriations to carry out the intent of the telephone act."

Secretary of Agriculture Benson, while his record shows definite support for the principle of cooperatives, and long affiliation with such organizations, also is displaying a high regard for efficient business management and the ability to get a dollar's value for a dollar spent.

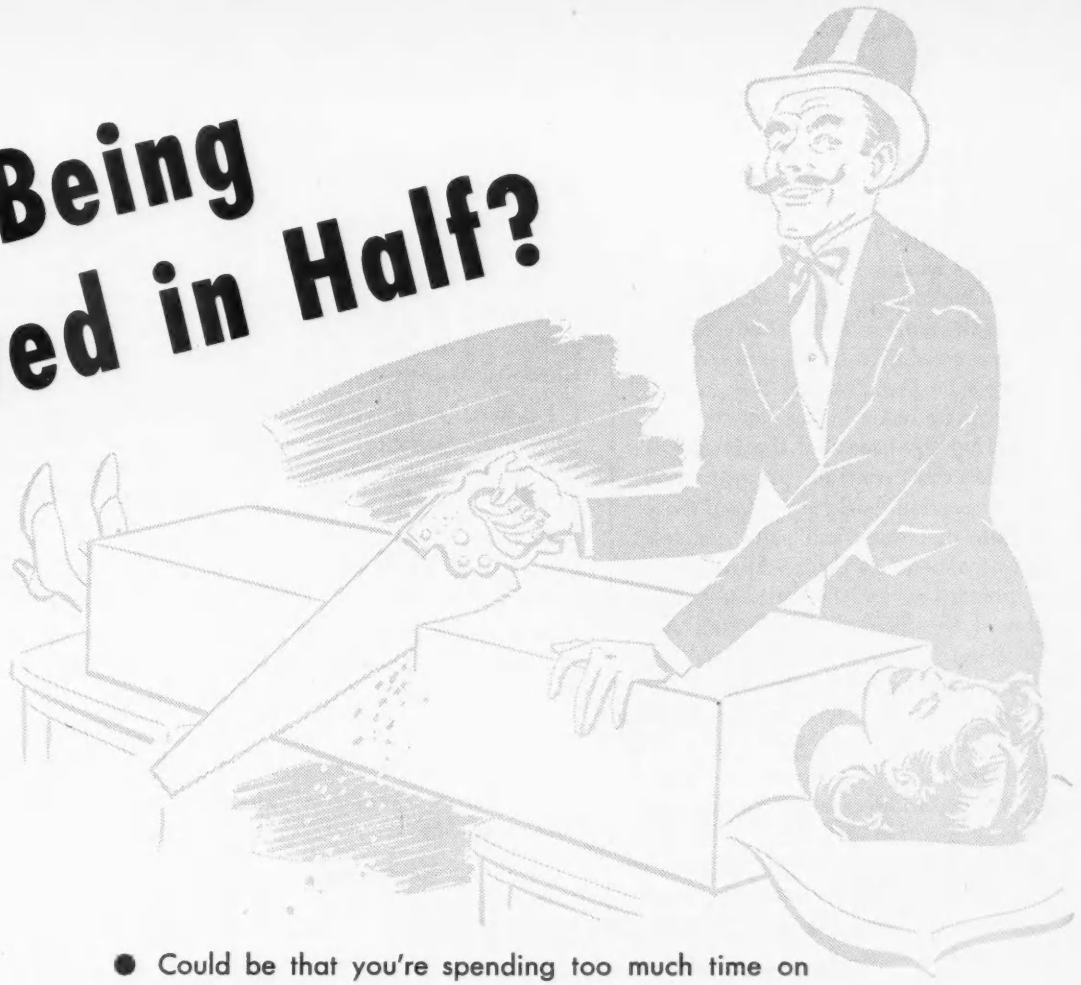
Material Controls

WHILE WORK had been completed on the mailing of notices to industry of allotments for the second quarter of 1953 of copper, steel, and aluminum, no action had been taken by Defense Production Administration (DPA) and National Production Authority (NPA) officials on a program of materials allocations for the third quarter of this year, as these lines were written.

Such inactivity would indicate at first glance that the new administration has given the signal to administrative officials that the controls program is going to be cast aside or at least replaced by some other system as part of the defense mobilization effort.

The situation was expected to be clarified, however, by President Eisenhower in one of his messages to

Are You Being Sawed in Half?



● Could be that you're spending too much time on directory advertising and still are not getting profitable results. It's impossible to be half-manager, half-advertising man. Estimate the hours that you spend on advertising details. Couldn't this time be spent more wisely elsewhere in your management job? Why not let a Loomis representative show the increased revenue – with public relations dividends – of the complete Loomis directory advertising service.

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UPPER DARBY (Phila.), PA.
6908 Market St. . . . ALlegheny 4-3763

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Congress. Officials of NPA and DPA had been "marking time" in apparent anticipation of the top-level directive outlining the Eisenhower administration's attitude.

Some time ago, when the Eisenhower forces were still gathered in their New York headquarters, it appeared certain that controls would be scrapped as one of the first orders of business after Jan. 20. But at least one of the most influential advisers of the new administration has urged that controls be kept, so that the government can be ready for any emergency.

During the time that the future of the materials controls program was still a question mark, signs were more definite that wage and price controls will be allowed to expire April 30 — as prescribed by the current extension of the Defense Production Act — if not before. Many Republican leaders in Congress had voiced the opinion that the economic controls are no longer necessary.

Meanwhile, DPA and NPA officials were, and had been, for the past several months — even before the November elections — preparing for the future. Several plans of materials controls had been put down on paper, as well as another plan providing for an orderly ending of all such controls. DPA-NPA leaders stated they were ready to carry out any White House order on controls.

Indications were that the administration might seek, as a substitute for the present controlled materials plan, a program whereby industry would "self control" quantities of the strategic materials. That is, a broad directive would be issued setting up a method of distribution of available materials, with companies self-alloting on a percentage of past consumption. These firms would have to keep their own records of materials usage — available for government inspection — and thus paperwork in Washington would be kept at a minimum.

COMING CONVENTIONS

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, Mar. 3.

Texas Telephone Association, Baker Hotel, Dallas, Mar. 9, 10 and 11.

Nebraska Telephone Association, Cornhusker Hotel, Lincoln, March 24, 25.

Iowa Independent Telephone Association, Hotel Fort Des Moines, Des Moines, April 7 and 8.

Illinois Telephone Association, Hotel Pere Marquette, Peoria, Apr. 15, 16, and 17.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 20-21 and 22.

Wisconsin State Telephone Association, Loraine Hotel, Madison, May 6 and 7.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 12, 13, and 14.

Kansas-Missouri Telephone Associations, (Joint Convention), Town House, Kansas City, Kan., May 20, 21, 22.

United States Independent Telephone Association, Executives' Conference, Edgewater Beach Hotel, Chicago, May 25 and 26.

Pennsylvania Independent Telephone Association, Pocono Manor Inn, Pocono Manor, June 3 and 4.

Oregon Independent Telephone Association and Washington Independent Telephone Association (Joint Convention), Chinook Hotel, Yakima, Wash., June 12 and 13.

California Independent Telephone Association, Ambassador Hotel, Los Angeles, June 18 and 19.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, September 24 and 25.

North Carolina Telephone Association, Carolina Hotel, Pinehurst, October 22 and 23.

South Carolina Telephone Association, (No Hotel Selected), October 26 and 27.

Oklahoma Telephone Association, Biltmore Hotel, Oklahoma City, November 12 and 13.

Congress

WHILE THE majority of eyes were on the White House and the new administration, Congress was going about the business of getting organized under Republican leadership for the first time since the short-lived GOP control of the 80th Congress.

For the record, there is listed following the membership of the House and Senate Interstate & Foreign Commerce Committees — the groups which handle communications legislation — and the tax-writing House Ways & Means and Senate Finance Committees.

House Interstate Commerce: Republicans — Wolverton, N. J., chairman; Hinshaw, Calif.; O'Hara, Minn.; Hale, Me.; Dolliver, Iowa; Heselton, Mass.; Bennett, Mich.; Hoffman, Ill.; Beamer, Ind.; Springer, Ill.; Bush, Pa.; Schenck, Ohio; Carrigg, Pa.; Warburton, Del.; Derounian, N. Y.; Pelly, Wash.; and Younger, Calif. Democrats — Crosser, Ohio; Priest, Tenn.; Harris, Ark.; Rogers, Fla.; Klein, N. Y.; Stanley, Va.; Granahan, Pa.; Carlyle, N. C.; Williams, Miss.; Mack, Ill.; Roberts, Ala.; Thornberry, Tex.; Heller, N. Y.; and Moulder, Mo.

Senate Interstate Commerce: Republicans — Tobey, N. H., Chairman; Capehart, Ind.; Bricker, Ohio; Schoeppel, Kans.; Cooper, Ky.; Griswold, Nebr.; and Potter, Mich. Democrats — Johnson, Colo.; Manguson, Wash.; Johnson, Tex.; Hunt, Wyo.; Pastore, R. I.; Monroney, Okla.; and Smathers, Fla.

House Ways & Means: Republicans — Reed, N. Y., Chairman; Jenkins, Ohio; Simpson, Pa.; Kean, N. J.; Curtis, Nebr.; Mason, Ill.; Martin, Iowa; Holmes, Wash. Byrnes, Wisc.; Goodwin, Mass.; Sadlak, Conn.; Baker, Tenn.; Curtis, Mo.; Knox, Mich.; and Utt, Calif. Democrats — Cooper, Tenn.; Dingell, Mich.; Mills, Ark.; Gregory, Ky.; Camp, Ga.; Forand, R. I.; Eberharter, Pa.; King, Calif.; O'Brien, Ill.; and Boggs, La.

Senate Finance: Republicans — Millikin, Colo., Chairman; Butler, Nebr.; Martin, Pa.; Williams, Del.; Flanders, Vt.; Malone, Nev.; Carlson, Kans.; and Bennett, Utah. Democrats — George, Ga.; Byrd, Va.; Johnson, Colo.; Hoey, N. C.; Kerr, Okla.; Frear, Del.; and Long, La.

(Please turn to page 79)

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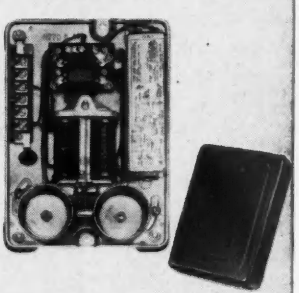

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Of course, automatic operation may bring extra traffic, require extra trunk facilities — but here again, Lenkurt offers your most economical solution! You can "stack" a Lenkurt Type 33-A carrier system on the same pair on which you are already operating your present single-channel carrier. Type 33-A will give you two *extra* channels (with dial signaling) to meet your increased requirements.

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EDITORIAL

Taking The Depreciation Rap

THE PART OF the cost of supplying telephone service that is the most difficult to determine accurately, is the current cost of depreciation.

Current cost of depreciation is also an important part of the cost of supplying service. If the allowance made for it in expenses is very far from its actual cost, somebody is being hurt — the public served if the allowance is too high; the telephone company if it is too low.

There now exists a situation in the telephone industry, with respect to allowances for the cost of depreciation, which will become increasingly damaging to the industry unless something practicable is done to correct it.

The cause of this situation can be broadly described by one word: Inflation. But, to the telephone industry, the important thing about it is not the cause, but the end result.

Let us suppose that, twenty-five years ago, a brand new telephone exchange was built; that the cost of the telephone plant was $100,000, and that $20,000 of that cost was for the switchboard.

The management estimated that the useful life of that switchboard would be 25 years. So it accrued depreciation on the board at the rate of 4%, or $800 a year. We will also suppose that it put that money in a separate fund.

The 25 years have now passed. The old board needs to be replaced. The company has, from its depreciation accruals, $20,000 for that replacement.

But a new switchboard, a duplicate of the old one, now costs $40,000!

We will suppose now that the company borrows $20,000 and buys the new board. It then winds up owing more than it had owed, and paying interest on that additional debt; also it must thereafter accrue twice as much for depreciation on the new board as it had provided on the old one.

And it has not, in this entire transaction, added a dime of revenue or supplied additional facilities which will bring it more revenue.

The foregoing illustration is, of course, very much oversimplified. But it illustrates a situation which, if it is not corrected, will become more and more serious to both telephone companies and their patrons as time goes on.

Non-regulated industry, faced with the same problem, is on the whole dealing with it realistically. Many such companies are making provision for depreciation of their equipment and machinery on the basis of replacement costs, rather than original cost.

Managements of such companies feel that, otherwise, they would be over-stating their profits.

It is reported that the new Federal Administration may favor a new depreciation policy in tax matters, allowing depreciation to be calculated on replacement cost rather than on original cost.

We think that, as to regulated industries, those who do the regulating must take cognizance of the tremendous increase in replacement costs, and must do something to encourage replacements and modernization, rather than to discourage them.

This can be accomplished only, we think, by the liberalizing of depreciation policies by regulatory commissions.

Until that is done in the telephone industry, telephone companies are taking the depreciation rap.

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THE "FARMER'S FRIEND" HAS BECOME A CITY SLICKER!

TELEPHONY'S N

Removing handset partially operates the hookswitch, connecting the *receiver only* to the line. No mutilating of calls or dial pulses.

If the line is obviously not being used, the subscriber depresses the small "two-step" button. This connects the transmitter into the line.

Replacing the handset restores the hookswitch to its not-in-use position and resets the "two-step" mechanism, for the next use.

NEWEST *Two-Step* HOOKSWITCH

The two-step hookswitch is actually 35 years old—Stromberg-Carlson first offered it in 1917. Because it had special application to rural party lines—allowing a subscriber to listen in on his own line without connecting his transmitter across the battery—it became known in the trade as the "Farmer's Friend."

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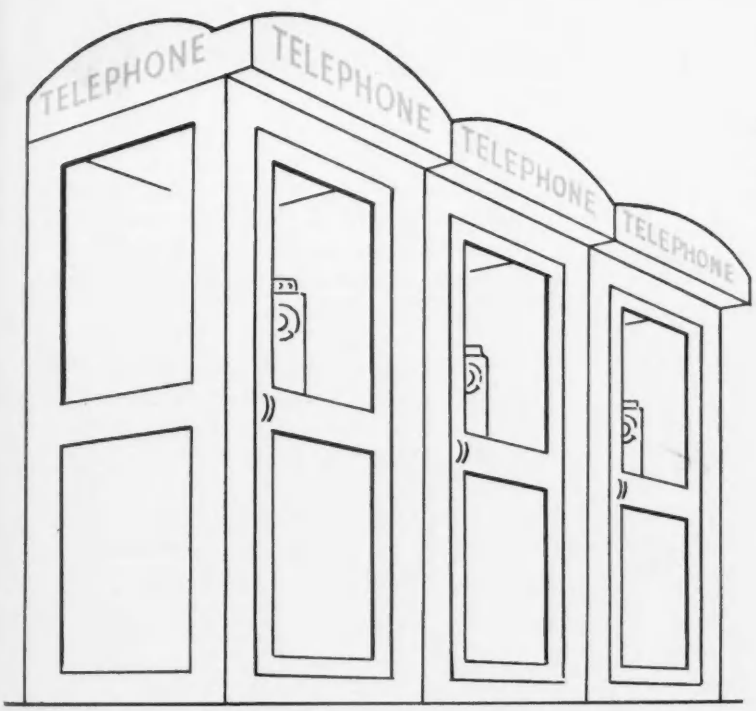

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THE NATIONAL TELEPHONE MAGAZINE

PLANT MAINTENANCE PAYS OFF

By WILLIAM C. DRIGGS, Sherman, Texas

WE, IN OUR BUSINESS, have only one item for sale. We don't sell telephones, poles, crossarms, wire, cable or switchboards. We sell *service* and service alone. This service can be no better than the condition of the plant over which the service is rendered. I would like you to remember that phrase so I repeat it. "The service can be no better than the condition of the plant over which the service is rendered." This is true no matter how many circuits you have, how many cords you have on the switchboard, no matter how many operators you have on duty or how expertly they handle your calls. This is greatly multiplied when applied to long distance service where, on a 10-mile call or a 5000-mile overseas call, one small link in the network would affect the satisfactory rendering of telephone service over the circuit.

Too many of us have been concerned only with our own little area or company, and we have not recognized the part each company plays in the world-wide telephone system. We sell service in our own communities for a small monthly rate, yet any telephone in the area can reach practically any telephone in the world in a few seconds or minutes.

Keeping all of your telephones and telephone systems in good working order further increases the value of this service to your subscribers. This fact is recognized by a number of State regulatory bodies in issuing rate orders in which maintenance practices and expenditures are major issues. Some commissions have withheld an order for an increase in rates until service is satisfactory. This results in a delay in a rate adjustment and is a confirmation of any service complaints which might have been made by your subscribers. In most of these cases the commission staff must also be satisfied that a noted improvement has been made. Further recognition of the need for adequate maintenance is evidenced by the inclusion in rate orders of a stipulated maintenance expenditure objective. Once this stipulation has been given, you are under obligation to operate accordingly and you therefore could be penalized because of the lack of an adequate maintenance program during the period prior to the rate case hearings.

I believe you will agree that rate case presentation is much more agreeable and far more satisfactory if you can enter a rate case with a sound maintenance program in effect, thereby reducing service complaints to a bare minimum, which of course will also reduce the public opposition to an increase in rates.

"We Sell Service"

AS I STATED before, we sell only service and we furnish the equipment and apparatus over which the service is given. It is our obligation to the public to practically guarantee that this equipment will work and work satisfactorily. All of us have had the experience of purchasing an article with a national reputation and guarantee and we are usually the first persons to complain if the article does not live up to its reputation. I have heard any number of people make the statement and I

WM. C. DRIGGS, General Manager of the Texas Telephone Co., Sherman.

quote, "Even when you buy nationally advertised merchandise, the service or the merchandise is only as good as the dealer or representatives who are charged with the responsibility of servicing such merchandise."

How different, then, is a telephone company? Aren't the managers charged with the responsibility of supervising the servicing of our equipment? Aren't our employees more or less responsible for properly servicing our equipment? I think they are and therefore I feel that sound maintenance programs can not be successful unless we do the following:

(1) Sell the management employees on the importance of sound plant maintenance.

(2) Sell all employees on the importance of each individual's responsibility in furnishing *good* service.

Once you have finally convinced all of your employees of the importance of good service and the important part that they play towards giving it, I am sure you will get many ideas which will aid you in licking your maintenance problems.

When this selling job has been completed, we then set up a basic program which we feel will fill the bill. This of course will vary in different size companies and even in exchanges within a company. However, there are certain fundamental plans which should be followed in all cases.

Preventative Maintenance

PROBABLY THE most important type of maintenance is that which is identified as preventative maintenance. However, the subscriber is more concerned with routine maintenance.

Routine maintenance involves that portion of repair work which is immediate and usually results from a subscriber's complaint or a case of trouble reported by an employee, such as an operator. This type of work should therefore take top priority on your calendar as it usually involves a service outage.

Preventative maintenance involves that portion of our repair work which prevents trouble and further maintenance on our plant.

Before I go further into the types of maintenance I would like to review briefly several practices which I have observed during my experiences in the telephone business and which I do not like. Too many employees do not do a good job on repair work. This fault is to be shared jointly by the management and the employee. The condition is not new and the telephone industry is not alone. I am sure that telephone people are more conscious of the service problem than those in most other industries, but I do not think we should be satisfied. A poor maintenance job is expensive and it always means another case of trouble and a repeat visit to the station.

To illustrate both the good and the bad I would like to cite two cases with which I am familiar and which I think will bring out the points that I would like to leave with you.

Several cases of trouble had been reported on a telephone and being a business telephone the owner of the business was not too happy. The line card was checked and it was found that three cases of trouble had been cleared within a week and no one investigated. When the second case of trouble was reported the testman should have questioned the repair man and advised him of previous trouble. This was not done then nor was it done on the next case.

To make the story short, the plant supervisor personally checked the premises and found enough things wrong to embarrass him. The inside wire was bad, was routed the long way around the building, the cord was frayed on the instrument, the protector had a loose connection and finally the drop was frayed badly and the insulation was worn at the building attachment. Mind you this was all found *after* a repair man had made three visits and on each visit had OK'd the equipment.

I much prefer mentioning the next case.

An exchange was being partially converted to automatic operation and 6000 dials were being added to blanked instruments and 3000 new instruments were being installed. The conversion crew was given a briefing and assigned to work for a week. They were then brought in to discuss irregularities, recommended improvements in routine, etc., before being turned loose on the final work. All men were instructed to *completely* routine all equipment on the premises including the drop. This was done on all 9000 stations visited and replacements were made at that time. A record was kept of station troubles for one year preceding the conversion and for one year following the conversion. Within 60 days after the conversion the number of cases of station trouble had been reduced, on a monthly average, to the equivalent of 1½ man's time on routine maintenance. This continued throughout the year during which the comparison was made.

Most of this type of work can be classified as prevention maintenance but it should be performed as a part of the routine maintenance work.

I would like to briefly review with you some of the items which should be considered in your maintenance program:

(1) CENTRAL OFFICE EQUIPMENT: — (a) Automatic equipment should be maintained in accordance with recommended practices as furnished by the manufacturer;

(b) Manual Offices: (1) Jumper and cable terminations should be checked and all jumpers should be soldered; (2) plugs should be checked, cleaned and gauged regularly; (3) jacks should be gauged; (4) cords should be checked by night operators, reported and repaired promptly; (5) central office batteries should be checked regularly and kept fully charged; and, (6) keys should be checked periodically and replaced if necessary.

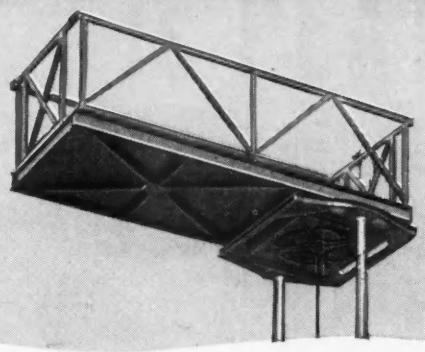
(2) STATION EQUIPMENT:— (a) Proper location should be selected to prevent breakage, avoid moisture, out of reach of children, cords off of floor; (b) protector should not be located in fuel rooms or laundry rooms and should be accessible; (c) proper entrance into house; (d) take care in selection of route of interior wire; and (e) always completely inspect and routine all station equipment when on premises.

(3) DROP WIRE: — (a) Proper routing of drop to avoid trees, shrubbery, etc. (use span clamp if necessary); (b) always allow proper sag; (c) firmly fix all attachments; and, (d) avoid power wires and get proper clearance.

(4) CABLE PLANT: — (a) In underground, consider use of gas in all cable; (b) check terminals when performing drop work, clean out with brush and be sure lugs are tight and

(Please turn to page 78)

"The Accepted Standard with Utilities Everywhere"



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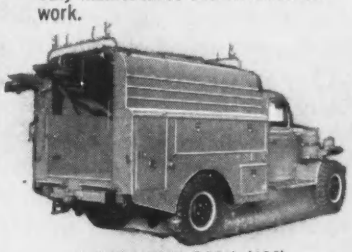

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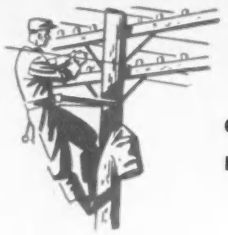

Section XV-A of Mr. Reed's article. begins a discussion of the proper maintenance of switchboard keys and explains how proper maintenance can improve service.

By JOHN S. REED

Modern Central Office

Maintenance Practices

IN the previous installment, the maintenance of cords, plugs, and jacks was covered in rather considerable detail, since neglect of this equipment can lead to serious cases of service interruption. The maintenance of switchboard keys is only slightly less important. Although wear from constant use is a factor in the production of noise and cut outs, actually much of the trouble is due to dirty key spring contacts or dirty and gummed parts in the key mechanism.

Another cause of trouble, which is manifested in poor transmission as well as noise is the formation of an oxide coating on the contact points of key springs which results in a high resistance to the flow of current at the points of contact. Precious metal or special alloys of rare metals are used in the contacts to minimize this oxidation, but contact sparking increases the oxidation tendency and causes pitting, both of which produces a high resistance at the contacts.

In time the key contacts may become so dirty or tarnished that even slight disturbances, such as those resulting from the operation of other equipment in the same or adjacent positions will cause variations in the strength of the voice currents or create noise in the circuits.

The condition of switchboard keys are checked in routine tests of the cord circuits. The maintenance man can determine by slightly moving and shaking the key, testing for excessive play in the cam bearings, and lightly tapping and jarring the top of the key shelf, while listening in a test receiver, whether there is any noisy, scratchy, or cut-out conditions by the interruption or variation of the sound heard in the receiver. This test should also include the contacts through which the operator's telephone set is bridged across the cord circuit. Excessive side play in levers of keys having horizontal spring assemblies should not be permitted.

The first step in eliminating contact trouble is to remove any dust or

Fig. 225 — Start of key reconditioning operation. Removing loose dirt and dust with dry paint brush. (Note: Shop repair procedure is shown. This and subsequent work operations illustrated can be performed at switchboard position by removing mounting screws, holding key to key shelf, and lifting out entire assembly.)

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dirt which has collected on the keys. This may be done by using a soft-bristle brush of convenient size such as a high-grade paint brush as shown in *Figure* 225. Adjacent equipment should be covered with a square of canvas to make sure that dust will not be introduced into other parts of the switchboard equipment.

After removing all loose dust, the key contacts may be cleaned with carbon tetrachloride. This is a clear, colorless liquid with an odor like that of chloroform. There are two grades of this cleaning fluid available, the ordinary commercial product and the chemically pure substance which has all impurities removed. Only the chemically pure grade which can be purchased very reasonably from chemical or drug supply houses or from telephone jobbers should be used in cleaning contacts.

Carbon tetrachloride evaporates very quickly and for that reason, as well as to keep dust from getting into the cleaning liquid, the bottle should be well corked when not in use. When working on the switchboard keys, it will be found convenient to use a one or two-ounce wide-mouth bottle filled with the chemically-pure carbon tetrachloride as indicated in *Figure* 226. Occasional cleaning of the small bottle and the replacement of the liquid will assure a clean fluid at all times.

Carbon tetrachloride is somewhat toxic in its effect and prolonged inhalation of its vapors may produce headache and nausea. For this reason, it is desirable to use only small quantities of the liquid in work operations, generally one or two ounces as indicated in the foregoing paragraph. If larger quantities must be used, the premises should be kept well ventilated while using the tetrachloride. It is also desirable to avoid bringing the liquid into prolonged contact with the skin as it dissolves natural oils and may produce unpleasant drying of the skin.

Some kinds of key spring insulation and bushings are affected by contact with carbon tetrachloride and care should be taken not to apply the liquid to contacts in quantities that will run down the springs into the insulating material. The tooth-pick method described below will minimize this possibility and should be employed in preference to using

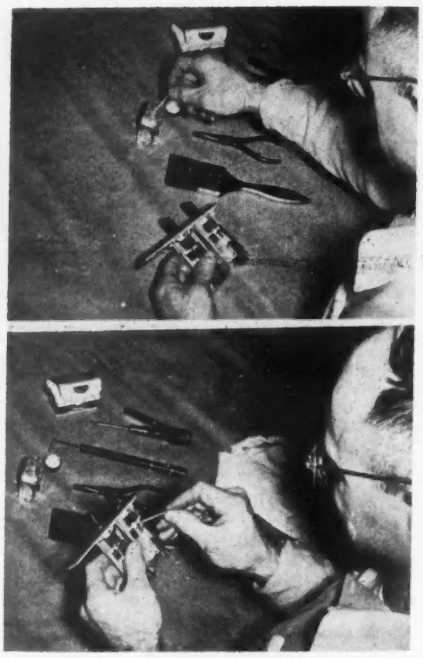


Fig. 226 — Tooth-pick method of cleaning key spring contacts. Above — dipping clean toothpick in bottle of carbon tetrachloride. Below — applying toothpick between spring contacts. This operation is followed by using another clean, dry toothpick to remove loosened deposit. (Note: Both toothpicks must be thrown away and fresh ones used for the next pair of contacts.)

a brush or cloth to bring the tetrachloride to the contacts.

The nature of the accumulation between contact surfaces may vary, depending upon the location of the apparatus and local conditions. Thus, some kinds of gasses and vapors and certain kinds of dust, such as that rising from a cement floor, may collect on the key springs. With arcing at contacts, this accumulation may carbonize and increase the electrical resistance of the contact points of the various keys. Grease or oil may increase the deposits of foreign material. The source is sometimes the natural oil from the hands of the workman.

One of the most commonly used cleaning procedures is the "tooth-pick method," illustrated in *Figure* 226.

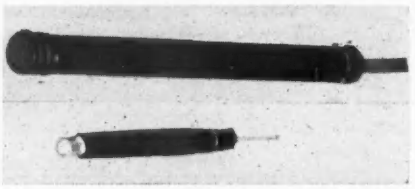


Fig. 227 — Types of burnishing tools. Above — large type with heavy burnishing blade. Below — small type with music wire burnisher for cleaning pitted contacts. This tool can be fitted with small flexible burnishing blade when needed. Both have hollow handles for extra blades.

In this method, the flat end of a hardwood toothpick is dipped into a bottle of chemically-pure carbon tetrachloride for a depth of about one-half inch and then inserted between a pair of contacts. By working the toothpick back and forth several times, with the contacts exerting some pressure against the wood, most foreign matter will be softened.

A clean, dry toothpick is then used to remove any particles of dirt that may be left behind by the first toothpick. It is important that a toothpick be used only once, as this prevents transferring the deposit from the dirty contacts to other contacts. New toothpicks should be picked up by the middle with the fingers so as to prevent contaminating of the surface of the wood which is inserted between the contacts.

After the dirt and grease have been cleaned from the contacts, a burnishing tool should be used to remove any oxide film that might be present, as well as to smooth the clean metal surfaces. A file of any kind must never be used on contact points as this will greatly shorten the life of the contact springs.

As generally available for telephone work, the burnishing tool consists of a finely sand-blasted blade of steel inserted in the chuck of a special handle having a hollow space for extra blades. Two types are used, one with large heavy blade suitable for contacts on switchboard keys and the other with small flexible blade for reaching contacts in difficult locations. Heavy blade burnishers are also available with bent tip or side tab to reach spring contacts obstructed by the key frame. These types are illustrated in *Figures* 227 *and* 228.

Two or three passes of the burnishing blade between closed contacts will generally be sufficient to remove the deposit on the contacts. Where pits cannot be removed entirely, a special burnisher blade made from music wire and having ball-point ends (*Figure* 227) can be employed to remove deposits from inside the pits.

Under certain conditions even the hardest contact metal will pit in service, due to the burning effect when the contacts are separated while current is flowing throw them. Mechanical pitting also results through permitting the key lever to snap back to normal position. This condition is

more apt to occur with the point-and-disc type of contacts where the operators are not properly trained to release the keys gently.

When contacts are badly pitted, it is generally more economical to replace the old springs with new ones rather than to attempt to smooth down the excessively rough pits. It is a good plan to have on hand a sufficient number of extra key springs so that replacements can be made as needed. Experience will indicate which springs require the most replacement and these may be stocked in the necessary quantities.

In an emergency, when replacement springs are not immediately available, it may be found possible to loosen the screws holding the springs to the key frame so that one spring can be moved slightly to one side of its opposite or mate spring. This changes the alignment of the contacts so that the actual point of contact is very slightly to one side of the original spot. When the spring assembly is tightened up, the contact will touch its mate in a different place. In no case should the contact fall outside the area of its associated contact. Eventually a new pit may form, but there will be enough surface to allow shifting the contact position several times before the contacts finally become worn out.

The blades of the burnishing tool should be kept clean by wiping them off frequently with a clean cotton cloth dampened with carbon tetrachloride. If the fingers touch the blade at any time, the blade should be wiped off immediately with the treated cloth. The clean blades should be kept protected when not in use by storing them in the hollow handle of the tool.

After cleaning and burnishing, the springs should be checked for proper contact follow, since frequent cleaning increases the contact separation and reduces the distance one contact is pushed by its mate before coming to rest. All contacts should have the proper amount of follow after making contact, also before breaking contact. The proper follow of springs is important to assure sufficient pressure between contact points, and to enable the contacts to slide one on another, resulting in a wiping or self-cleaning action. Data specifying the proper amount of follow can be obtained from the switchboard key manufacturers.

On older switchboards the key spring fiber or composition insulators tend to shrink or loosen, causing a shifting in the contact alignment.

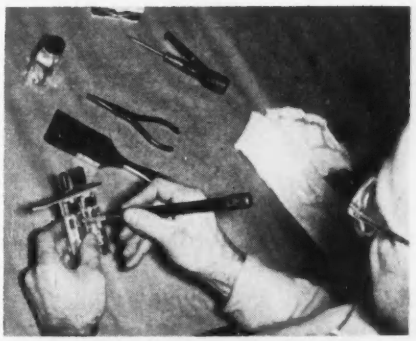


Fig. 228 — Using contact burnisher.

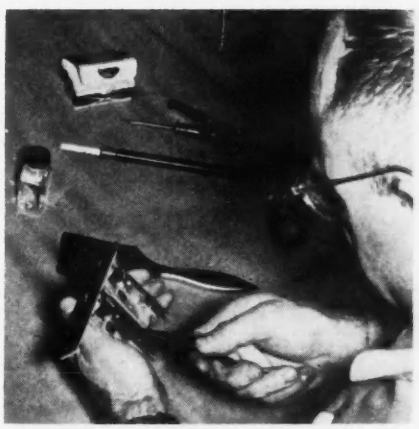


Fig. 229 — Adjusting key spring follow. Note use of duck-bill pliers to bend springs at point where they leave the spring pile-up insulation.

This looseness also causes movement of the key springs on operation of the key, and this slight movement will in time cause breakage of the wiring at the soldered connection. This is particularly true where bare wire common strapping is used between adjacent keys. Present day switchboards are now equipped with key insulators that are not subject to shrinkage. Bare wire strapping has been replaced by looped commons that will not cause this trouble.

To correct trouble caused by insulator shrinkage, first carefully line up the key springs. Then tighten down the clamping plate screws. After the spring assembly is tightened up the springs should be adjusted if necessary.

Unless otherwise specified by the manufacturer, the springs should be bent with duck bill pliers close to the point where they leave the clamping plates and insulators as shown in *Figure* 229. Kinking of the springs will seriously weaken the metal and should be avoided. The key wiring should be examined for loose connections, and the wiring dressed neatly in place. All loose connections should be resoldered.

(Mr. Reed's discussion of switchboard key maintenance will be continued in the March Fortnightly Telephone Engineer.)

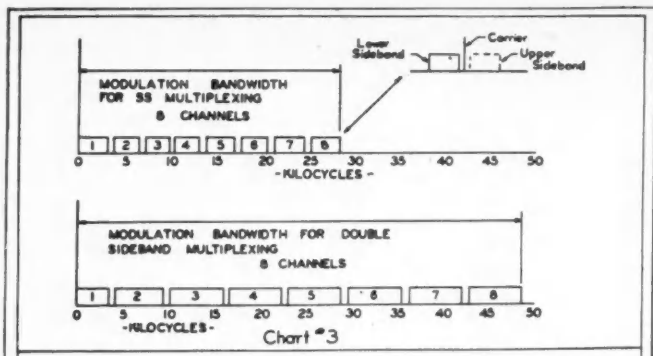
Habits

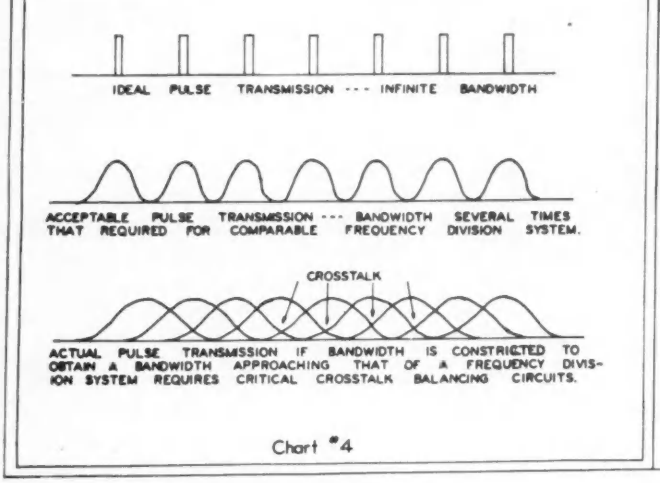
IT SEEMS that the popular connotation of the word "habit" is a repeated act or trait of character which needs correction. When you hear someone say, "I have a habit of doing that," he usually means that he has a *bad* habit of doing that. However, we must remember that habits can be good as well as bad.

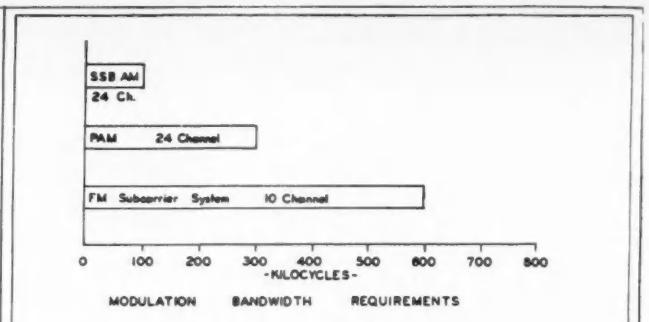
In safety, we strive to develop good, safe habits and discard those that are bad and unsafe. Bad habits are often very hazardous, whether they pertain to acts which are performed while driving an automobile, or while working or playing. Sometimes good habits result in accidental injury. A safe act performed at an unsafe time can be injury-producing. It may be worthwhile to take an inventory of our habits and determine if any of them are creating hazardous conditions or exposing us to unnecessary danger.

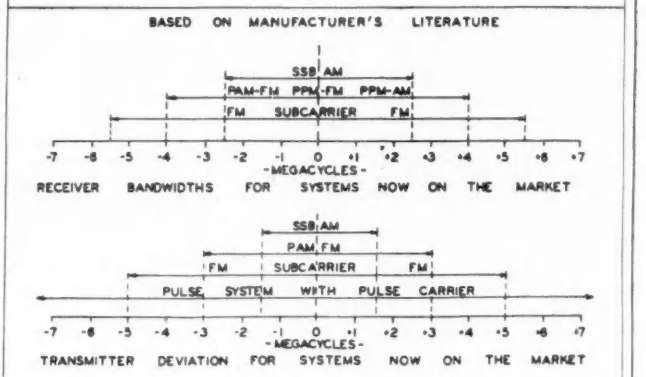
It may be that where unsafe working habits or unsafe driving habits are repeated time after time, a high degree of skill is obtained in performing the unsafe act; and as a result, accidents do not occur and injuries are not sustained for a long period of time. This, in a measure, accounts for the time-worn statement that, "*I have been doing it that way for* 20 *years and haven't been hurt yet.*" But just one interruption of the normal trend of habitual action may lay the groundwork for a serious injury.

Be sure your habits, whether good or bad, do not hurt you. — *Safety Digest.*


Lower Sideband
Carrier
Upper Sideband
MODULATION BANDWIDTH FOR SS MULTIPLEXING 8 CHANNELS
1 2 3 4 5 6 7 8
0 5 10 15 20 25 30 35 40 45 50
-KILOCYCLES-
MODULATION BANDWIDTH FOR DOUBLE SIDEBAND MULTIPLEXING 8 CHANNELS
1 2 3 4 5 6 7 8
0 5 10 15 20 25 30 35 40 45 50
-KILOCYCLES-
Chart #3


IDEAL PULSE TRANSMISSION --- INFINITE BANDWIDTH
ACCEPTABLE PULSE TRANSMISSION --- BANDWIDTH SEVERAL TIMES THAT REQUIRED FOR COMPARABLE FREQUENCY DIVISION SYSTEM.
CROSSTALK
ACTUAL PULSE TRANSMISSION IF BANDWIDTH IS CONSTRICTED TO OBTAIN A BANDWIDTH APPROACHING THAT OF A FREQUENCY DIVISION SYSTEM REQUIRES CRITICAL CROSSTALK BALANCING CIRCUITS.
Chart #4


SSB AM 24 Ch.
PAM 24 Channel
FM Subcarrier System 10 Channel
0 100 200 300 400 500 600 700 800
-KILOCYCLES-
MODULATION BANDWIDTH REQUIREMENTS
Chart #1


BASED ON MANUFACTURER'S LITERATURE
SSB AM
PAM-FM PPM-FM PPM-AM
FM SUBCARRIER FM
-7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7
-MEGACYCLES-
RECEIVER BANDWIDTHS FOR SYSTEMS NOW ON THE MARKET
SSB AM
PAM FM
FM SUBCARRIER FM
PULSE SYSTEM WITH PULSE CARRIER
-7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7
-MEGACYCLES-
TRANSMITTER DEVIATION FOR SYSTEMS NOW ON THE MARKET
Chart #2

"Microwave Channellizing"

By L. E. ADLER*

FOREWORD: The subject of microwave channellizing, or "multiplexing," or "division," (as you prefer) is treated herein with special reference to the problems of dispatching, signaling and administrative services encountered in private-wire operation, particularly the petroleum, gas, power and railway industries. However, it should be remembered that the technical problems discussed herein apply equally to all projects of this nature when applied to public or "common-carrier" institutions.

General

IT IS A far cry from the first old grounded iron-wire telegraph circuit used for pipe-line operation to the modern electronic communication systems of today.

The application of microwave transmission to pipe-line and kindred services has moved so rapidly that the industry as a whole is still groping for some of the answers, and to grope wrong means to "gripe" later.

It is therefore the intent of this writer to present as clearly and briefly as possible the present-day status of channellizing or multiplexing problems, chiefly from the standpoint of 28 years close contact with the petroleum and kindred industries, as well as some 18 years with public telephone utilities.

DEFINITIONS: — At this point let us introduce a few definitions of major terms for the benefit of those readers who may have not yet had the opportunity to become familiar with the subject of this article:

CHANNELLIZING: — This means the application of sub-channel equipment to a radio circuit for the purpose of obtaining a number of voice and/or signaling channels over a given Federal frequency assignment or wavelength. Naturally, since all of these assignments are limited more or less in the width of the band or spectrum, it follows that all prospective users of microwave should be vitally interested in obtaining the maximum possible number of sub-channels obtainable over the assigned band-width. There are other important factors to be considered in selecting a channellizing system which will be dealt with later, such as over-loading the radio-input with heavy bombardment by continuous-wave signals.

MODULATION: — The word "modulation" as most of you know means to alter or modify a normally steady frequency source to convey information over a communication system.

* *Mr. Adler is president of the Southern Electric & Transmission Co., Dallas, Texas.*

There are three types of modulation in use, each with its own advocates, each with its own variables in method and circuitry. It is the main purpose of this article to present the pertinent facts in a manner to enable the reader to arrive at his own decision as to what system is best suited for a particular project. Here are the available channellizing systems:

FREQUENCY MODULATION: — This means that the information is carried by manipulations on the frequency of the source. Here the rate of speed of the change in carrier frequency corresponds to the voice, tone or signal frequency while the *degree* or percentage change corresponds to the magnitude or *loudness* of the information. Usually, frequency-modulated signals vary in frequency by many kilocycles above and below the normal steady frequency but amplitude variations are small or completely absent.

AMPLITUDE MODULATION: — This places the signals or "information" on the normally steady source frequency so that the *amplitude* or "spread" corresponds to the loudness of the signal while the actual frequency is varied to correspond to the information frequency. Thus, frequency changes are equal in degree to the band of frequencies present in the information, and both a lower frequency (called the lower sideband) and a higher frequency (called upper side band) are normally present, along with some unmodified steady source frequency.

If, however, one of these sidebands is filtered out, we have "single side band."

CARRIER MODULATION: — It is also possible to eliminate the steady source carrier wave as well as one side band and still transmit the information. Under this condition, the steady source does not appear in the radio-input except during the time the information is actually impressed upon the steady source or carrier wave. Single side band suppressed carrier modulation is by far the most widely used in wire-communication industry and its application is equally valuable to the channellizing of microwave radio. This system is abbreviated S.S.B.

PULSE MODULATION: — This is a method of placing the information on a normally steady frequency so that the steady frequency is transmitted in short pulses or "squirts." If the amplitude of a pulse corresponds to the instantaneous amplitude of the information signal, we call this "pulse amplitude modulation" or PAM.

If the time relationship between successive pulses corresponds to the amplitude of the information signal and the rate at which this time varies corresponds to the information of the information signal, we call this Pulse Time Modulation or PTM, or Pulse Position Modulation, abbreviated PPM. A further type of pulse modulation which is not yet in general use, shapes the individual pulses in accordance with both the frequency and amplitude of the information. This is termed Pulse Shape Modulation or PSM.

"Worthy of the Name?"

WHAT SHOULD be emphasized is that the modern supervisor, to be worthy of the name, must be both a *Man supervisor* and a *Work supervisor*. The single ability to "get the work out" is no longer a sufficient reason to advance a man to the supervisor's grade. We may take for granted the requirement that a supervisor knows his job and all the jobs to be under his direction. What must be added as an equal requirement is the ability to work with men successfully. We do not ask that supervisors be psychologists. We do insist that they know the qualities of men, the ways in which men will work best, and, further, *that they know men under their direction* . . . Above all, the supervisor should be a leader in the determination to "get along"; he should be animated by good will. — *Dr. Walter A. Cutter, Ass't. Director, Center for Safety Education, New York University.*

Now What?

THE ASSIGNMENT of high-frequencies by the F.C.C. led to a hectic rush to market by numerous manufacturers of radio transmitting and receiving equipment. Now that we have outlined the various types of channellizing systems available from the nation's manufacturers, let us consider both the advantages and disadvantages of these systems, with a view to selecting the one best adapted to a given project.

As stated before, there are actually but two general or basic types offered the buyer, each type having two or more methods from which to choose. Let us call them *Group No. 1, frequency division* and *Group No. 2, pulse division*. Group No. 1 includes FM double sideband, AM either single or double side-band and either suppressed or unsuppressed carrier-wave.

There are also three conditions involved in dispatching oil, gas, trains, power, etc. which have a very important bearing on the selection of systems.

Condition No. 1: Where all channels are of the through type, i.e., end to end with no "drop-out" or intermediate stations involved either initially or future plans for extension of the service.

Condition No. 2: Where drop-outs and/or intermediate stations in one or both directions are required either initially or for future extensions.

Condition No. 3: This is the important matter of economics, as well as spectrum conservation. The air is no longer "free", and radio-frequency assignments as well as bandwidth are rapidly approaching the premium and hard-to-get stage. So if you will need the maximum number of channels over a given bandwidth, you have only one system from which to choose. Any system purchased from a reputable manufacturer will meet Condition No. 1. Any good system under Group 1 (frequency division) will meet conditions No. 1 and No. 2.

But only *one* system, i.e., single side-band AM will meet all three conditions, as well as other factors discussed later. Here's why: —

(1) The SSB AM suppressed carrier system has proved its worth in wire-line service for over 30 years throughout the world. If properly designed, it is also the most flexible since the same equipment is applicable with equal facility to both radio and wire transmission.

(2) More channels over a given width of R.F. band (Condition No. 3).

(3) The entire system is not at the

mercy of a common channellizing unit such as pulse generators, etc.

(4) No constant transmission of inactive channels to overload the radio input and thereby aggravate cross-talk with another system operating on the "fringe" of its band. Even a little "monkey-chatter" is preferable to a continuous tone or buzz.

(5) Future re-arrangements at minimum cost.

(6) Ideal for drop-out and intermediate stations, party line operation, sub-multiplexing for signal and control channels. Completely avoids ultra-costly back-to-back layouts required for party-lining pulse systems.

(7) Minimum number of tubes required (only 3 to 4 per channel terminal), therefore less expense and greater reliability.

(8) Absence of "cross-talk balance" problem.

(9) Less maintenance complication since those who now maintain wire-line carrier-systems are perfectly familiar with SSB technique. No new knowledge required, no horde of specially-trained new help.

(10) Voice channels can be multiplexed over wire lines, then fed directly into the microwave equipment. This is especially important for bringing in feeder lines and can be done only with frequency division.

(11) Easy to build up or cascade two or more microwave systems with each other even though totally dissimilar microwave systems are involved.

(12) Interchangeable with either wire lines or radio systems.

Now For The Proof!

AT THIS POINT the reader may well inquire "Where are the facts, figures, and other supporting data proving the advantages of SSB suppressed-wave channellizing?" Well, here they are presented (we hope) in an easy, understandable way:

FIRST: — Chart *No.* 1 shows the modulation band width required for — (1) a 24-channel SSB Suppressed AM system, (2) a 24-channel PAM system, and (3) a 10-channel FM system.

Note that while the SSB system requires only a 100kc spectrum, the PAM system takes up three times as much per channel; while the FM system requires about three times as much. It won't be long (in fact it has already happened) that the FCC boys will remind us of this in a big way. So let's not kid ourselves into living in a fools' Paradise until it is too late.

SECOND: — Chart *No.* 2 shows the transmitter & receiver modulation band-widths for the same various systems. Here again the SSB takes considerably less width than the other two systems. In transmitter deviations, there is also a tremendous advantage of SSB suppressed carrier over the pulse systems, especially the final carrier pulse. Of the three, it should be added that both of double side-band systems cited herein use final FM carrier. Transmitter deviation on the SSB 24 channel system is only plus or minus 1½ megacycles. So be very careful when you are offered a system on which only bandwidth is quoted. They might forget to tell you that in order to transmit sharp pulses it is necessary to scatter the bands over 50 or so megacycles from the adjacent transmitters to prevent the abnormal side-band from cross-talking with the adjacent channel. This introduces a real cross-talk hazard between two paralleling systems, even though on unlike frequency assignments. Pulse systems cause extravagant waste of the spectrum because of the broad band over which the sidebands are dissipated, and because of the abnormally wide frequency band due to the nature of such systems.

THIRD: — Chart *No.* 3 is a simple one showing how a SSB system conserves space as compared to a double side-band unsuppressed system.

FOURTH: — Chart *No.* 4 explains why the pulse systems are also open to cross talk. Too much propaganda has been put out to the contrary, for actually interference in service has proved this to be a real disease. "Ask the man who owns one." (If he knows you well enough to admit it).

In general, cross-talk on pulse systems is a real problem unless the band-width is quite excessive. Another trouble now being encountered in pulse systems is the greatly reduced tube life due to constant pulse "hammerings." Then too, these systems require tricky cross-talk balancing circuits. And it is necessary to balance at a number of points instead of only one. Cross-talk balancing is further complicated by channel insertion and channel drop-outs. Another major advantage of frequency division is the number of tubes required. While this writer does not know the exact number of tubes used in some of the systems herein discussed, the following summary is on the conservative side:

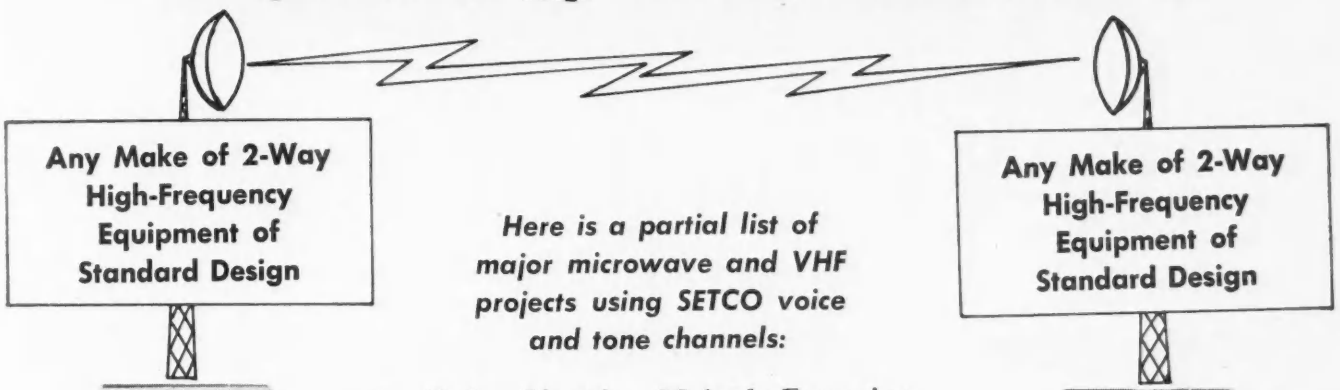
	Terminal Station	Rept. Sta.	Service & Faults	24-Channel Terminal	24-Channel Signal	Regulated Power Supply
Pulse System No. 1	25	49	?	156	?	Yes
Pulse System No. 2	45	56	?	216	?	Yes
Pulse System No. 3	32	48	?	332	?	Yes
SSB AM Syst.	35	48	5	72	24	NO

Note that regulated power supplies are not needed for SSB AM unless the AC line voltage drops below 95 or exceeds 130 volts. The question marks denote accurate figures not available.

In conclusion, let it be said that each system has its place in the world, if you pick the right system for the right place. It is neither our province nor desire to more than merely help the reader to think for himself. We only say that since this entire part of the communication industry is still in a formative stage, *don't be a guinea pig!* And, if you are tempted to be influenced only by price, it is well to remember John Ruskin's famous advice — "The common law of business balance prohibits paying a little and getting a lot — It can't be done! If you deal with the lowest bidder, it's well to add a little something for the risk you run, and if you do that, you will have enough to pay for something better."

In the meanwhile, before making up your mind, may we urge that you carefully consider the pregnant warning embodied in the pitch of the old-time carnival grifter — "Under which shell is the pea, gentlemen?" — THE END.

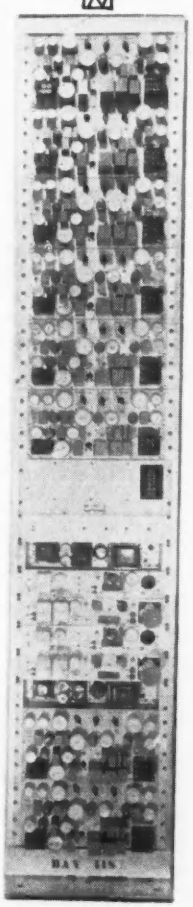
"SETCO" Channelizing Equipment FOR MICROWAVE AND VHF RADIO Is Specified By Those Who Know!


Any Make of 2-Way High-Frequency Equipment of Standard Design
Any Make of 2-Way High-Frequency Equipment of Standard Design

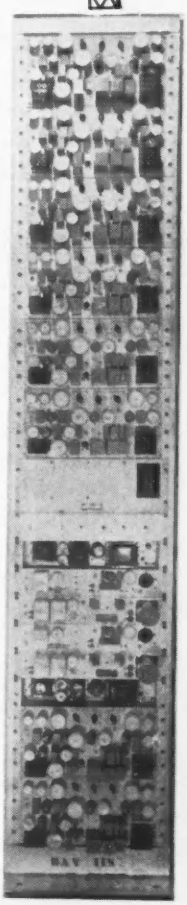
Here is a partial list of major microwave and VHF projects using SETCO voice and tone channels:

1. Union Electric - Moberly Extension
2. Union Electric - Joppa Extension
3. New Jersey Turnpike
4. El Paso Natural Gas Co.
5. State of Washington - Highway Patrol
6. Atomic Energy Commission
7. Orange County, California, Police
8. Central Arizona Light & Power
9. City of San Diego
10. United Gas Pipeline
11. State of Virginia, Highway Patrol
12. Arizona Public Service Corp.
13. Texas Gas Utilities Co.
14. Transcontinental Gas Transmission Co.
15. State of California Highway Patrol
16. RCA International (Puerto Rico)
17. Creole Petroleum Corp.
18. Southern California Edison Co.

The above projects represent a total of 297 voice and 240 tone channels. Setco channelizing systems can and are being applied to any standard make of basic radio.



WEST



EAST

IF YOU ARE INTERESTED IN WHAT OUR 25 YEARS OF EXPERIENCE CAN DO FOR YOUR CHANNELIZING OR MULTIPLEXING PROBLEMS,

WRITE FOR COPY OF OUR BROCHURE ON "MICROWAVE CHANNELIZING"

"MORE CHANNELS PER RADIO BAND-WIDTH"

Southern Electric & Transmission Company

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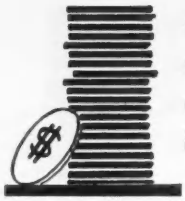
The Home of "Firsts"



"Management today is not the task of a few — it is the job of every man whose responsibilities include the direction of human effort."

THE MANAGEMENT FORUM

Conducted by JOHN G. REYNOLDS

This month your Management Forum discusses — (1) Spending Money To Improve Service, (2) Developing an Employee-Training Program, and (3) Handling Press Relations.

"Put and Take"

THE PROBLEM:— *Spending money* to improve service.

THE SOLUTION:— *Carl Daubendiek*, president of the Jefferson (Ia.) Telephone Co., tells us that he has observed two games being played—one is called "*put and take*" and it is played with an eight-sided top, and the other is a game played with cards, and in polite circles is named "*defraud your neighbor*", and often telephone companies play a game of "telephony" likened to the two games mentioned. Some companies give the impression of playing the game of "defraud your neighbor" by believing money spent to improve their telephone service is going to benefit their neighbor, and as such, would be a waste of their good money. To some extent these companies play the game of "*put and take*" in such a way that they "*take all*" and put "*nothing*" back.

Mr. Daubendiek plays the game of "*put and take*" in a business way, and has definitely followed this policy in all of the transactions of the Jefferson Telephone Co. by investing all of its money and a great deal of other peoples' money in the best and most modern equipment known.

He has attempted to see that the lowest grade of service, four-party or farm line service, is sufficiently good to be of commercial grade and acceptable to long distance companies for toll service. He does a reasonable amount of advertising, subscribes to the *Telephone Advertising Institute Services*, uses truck posters, etc.

In other words, he has the firm opinion that it is the *telephone company's duty to see that an A-1 grade of service is given not only in the equipment, but that the operating force is contented—satisfied with the working conditions and sufficiently well paid that they need not have financial worries to bother them in their work.* All of this is done first,—the "*put*" end of the game, and Mr. Daubendiek assures us that the "*take*" end over the counter is pleasant and easy.

"I realize", he states, "that all this is possible in good times, but I am just as firmly convinced that should recessions occur, and I have made the service as attractive as I know how, that through necessity our subscribers will continue to use our service and pay for it long after many other conveniences have been dropped. I am just as firmly convinced that those who have practiced the game of "*defraud your neighbor*" will find that the subscribers will say that the telephone service is not worth it any more, and they will again lose subscribers . . ."

"Training Programs"

THE PROBLEM:— Developing an employe-training program.

THE SOLUTION:— The success of the training program will depend, not only on its practical qualities and objectives but also on the sequence, timing, and method of presentation.

In order to be of maximum effectiveness, the essential subject matter must be presented in logical sequence. Interdependence of the various program subjects and operations should be carefully analyzed and clearly defined. Such a process will facilitate actual presentation and final absorption by employes. In addition, it will tend to focus proper attention on the important elements of the program and nonessential material. Thus the training will be developed in progressive, orderly stages from the elementary to the advanced.

Timing is of particular importance. Each subject is weighed in relation-

ship to the final objectives of the program and the learning capacity of the trainees. If sufficient time cannot be given to each subject so that it can be absorbed by the average worker the program is revised accordingly. Rapid exposure to a variety of involved subjects is avoided. If the program has been carefully planned, it follows that the subject detail in each instance is of sufficient importance to allot a full measure of instruction time. The proper time can be determined best by trial and error. Frequent tests and checks on student progress, as the training phases are completed, will indicate whether or not sufficient time and proper methods are being employed.

An examination of the presentation methods and techniques employed in the more successful training programs by both large and small companies reveals a basic reliance on proved fundamentals of teaching. These fundamentals are consistently adhered to throughout all phases of the training programs. The mechanics of instruction consist of (1) advance preparation, (2) explanation, (3) demonstration, (4) application, (5) examination, and (6) discussion.

ADVANCE PREPARATION:— One of the surest ways of making a clear, convincing presentation is meticulous advance preparation, rehearsal, and review by instructors and conference leaders.

It is the responsibility of the training director to see that the instructors and conference leaders are properly prepared to carry out the training in accordance with the approved program and schedule. To accomplish this, the more successful training directors hold frequent group and individual conferences with the instructors prior to program presentation. Thus instruction responsibilities and standards are agreed upon, established, and coordinated.

Before the instructor prepares and plans the work, he gathers such information as the following:

(1) The subject, or the nature of instruction to be given.

(2) Relationship of the subject to the over-all program and training schedule.

(3) Time allotment.

(4) Group size, composition, and experience.

(5) Place where instruction is to be given.

As soon as the foregoing points are known, the instructor will be in position to analyze the subject and plan presentation. The following basic points on advance preparation, developed by the United States Army in its wartime instruction, are equally applicable to employe training.

(1) What is the scope of the subject matter to be covered? What must be done in the period and what must the instructor know to do it?

(2) How should the student be prepared for the lesson? Is a previously prepared text assignment desirable? Will a brief explanation or illustration be satisfactory? What will tie this lesson to those previously taught?

(3) What will be the most effective method of presenting the subject?

(4) Does the subject lend itself to any special means of arousing and maintaining interest? What case examples, illustrative stories, etc. are applicable?

(5) What methods or means may be employed to require the student to apply the ideas and knowledge presented or to gain skill in procedure?

(6) What type of examination is most suitable for determining the effectiveness of the instruction and impressing the subject on the student? Should it be an oral or written examination or a performance test?

(7) What key points are to be summarized in the discussion at the end of the period?

(8) How should the lesson time be proportioned to the various key phases of the instruction to accomplish the best results? Time allotment must be borne in mind during the whole analysis and a final time schedule should be made at the completion of the plan. If time estimates are too short, it will be the result generally of one or all of the following reasons: (a) Overenthusiasm on the

(Please turn to page 50)

A Story in Ink

A RECENT REPORT tells of a salesman who uses a fountain pen to dramatize the need for retirement income. He carries an empty pen—tries to use it—and asks his prospect for an ink bottle. Then, as he slowly fills the pen, he compares it to his prospect:

"You know, the nice thing about a fountain pen is that you can refill it when it runs down. You and I, of course, are different. There comes a time when our energy runs out and can't be replaced. After 50, we're pretty hard to 'refill'. And that's when we're glad to have an income to fall back on."—*Canadian Insurance.*

• • •

Aim For The Stars

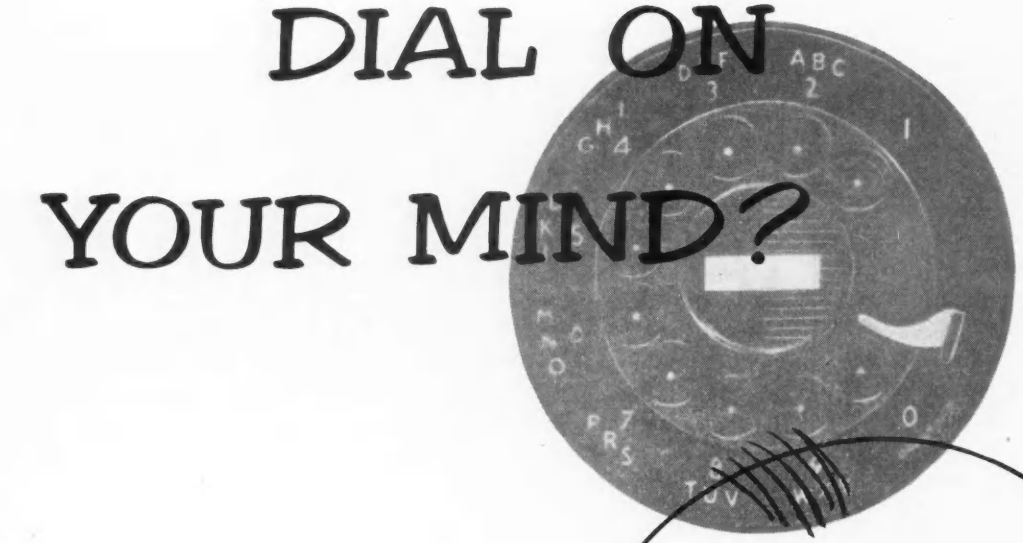
MAKE NO LITTLE PLANS: They have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency. Remember that our sons and grandsons are going to do things that would stagger us. Let your watchword be order and your beacon beauty.—*Daniel Hudson Burnham.*

• • •

"Leadership"

"THE ABILITY to keep a cool head in an emergency, maintain poise in the midst of excitement, and to refuse to be stampeded are true marks of leadership."—*R. Shannon.*

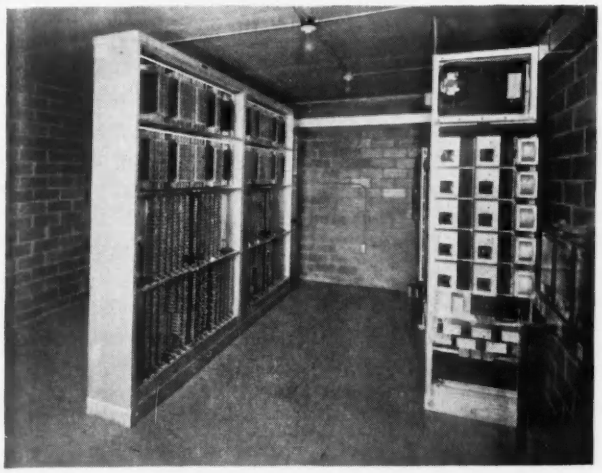
DIAL ON YOUR MIND?



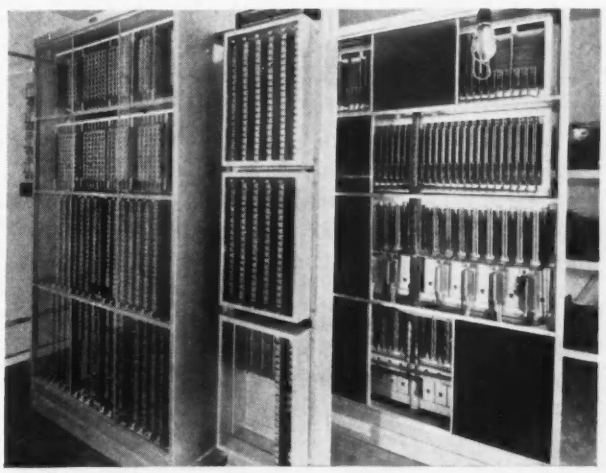
You'll make more money with a

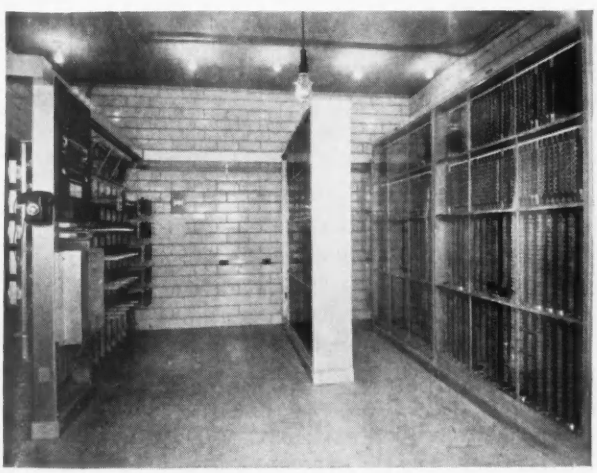
Here's why you will make more money with a Leich Dial System. First, it costs less to install. Then, you'll find that it costs less to operate and maintain. Your Leich Dial System will give the finest, most modern dial service, with a minimum of trouble. Next, you'll discover that additions are made inexpensively and quickly by your own men who merely jack-in additional lines and links. We have a new 28 page, two-color catalog which tells you all about the profit possibilities of this Leich Dial System. Write for it today. No charge or obligation. Address Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

LEICH



LEICH DIAL SYSTEM





MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

MEMBER OF THE GENERAL TELEPHONE SYSTEM

part of the instructor, causing him to extend his remarks, illustrations, and discussion beyond the allotted time; (b) lack of necessary background on the part of the student or failure by the instructor to appreciate the difficulty of the subject, which prevents the presenting of new ideas as rapidly as planned; (c) Failure of the instructor to stick close to the subject, usually the result of digressing questions from the floor.

(9) What training aids, such as films, slides, charts, and special equipment are necessary and available?

Once the instructor has given careful consideration to the lesson analysis, particularly the nine basic points just noted, the lesson plan should be drawn up. This plan will serve as a convenient, brief outline and guide in presenting the subject.

The final step in advance preparation is rehearsal, where, so far as practical, the complete presentation is made. Staff and operating personnel, both those familiar and unfamiliar with the subject, can often make extremely valuable constructive suggestions at these rehearsal sessions. These practice sessions will help iron out the "bugs", and develop a worthwhile, convincing, and smooth presentation and also provide an excellent check on the timing detail.

EXPLANATION:— Explanation, the first step or phase in the actual training presentation sets the stage and orients the audience. The instructor explains the purpose of the session and why it is of special importance. The student's interest is gained and he becomes receptive to the instruction that follows. These explanations are brief and to the point. They are tied in with what the student already knows, the training to date and, in particular, the practical benefit it will be to him in his future work. In this way the group and the instructor start at an even level of understanding.

DEMONSTRATION:— Ideas are imparted through the physical senses, seeing, hearing, smelling, tasting, and feeling. The most effective training programs employ as many of these physical senses as possible. Demonstrations are especially valuable in clarifying and establishing key points in the instruction. It is for this reason that the majority of successful trainers make frequent use of such visual aids as films, slides, models, charts and diagrams, and in some cases playlets.

To maintain interest and enthusiasm, it is especially important that monotonous training routine be avoided. Demonstrations, carefully timed, serve as an excellent medium for introducing the variety and pace change necessary to stimulate effective interest in the program.

EXAMINATION:— Tests and examinations conducted during training serve a double purpose. First, they provide a positive means of checking the individual's proficiency and understanding of the essential key points of the subject; and second, they provide management with one means of checking the effectiveness of the instruction methods. When trainees are not tested, they invariably get the impression that management does not think enough of the subject to examine them on it.

The tests and examinations may be either written or oral. In some companies, regular short quizzes are given at the beginning of each day's training session, covering the subjects of the previous session.

For example, one company holds a 20-minute written quiz at the start

"On The Ball Selling"

WHILE a Galveston, Tex., installer adjusted the bell of a residential telephone he'd just put in . . . the darn thing rang.

"Must be a wrong number," he thought. But no. When he answered he found to his amazement it was a service representative already calling the new customer to see if she could sell him an extension telephone.

In Helena, Ark., a woman called in to say her telephone bell wasn't loud enough. "An extension telephone would solve your problem," testboard-man Austin Goodman suggested. And she took one.

A Winfield, Kan., customer came to the business office to apply for telephone service. He had just moved into a large rambling house where the previous occupants had two extensions. Mrs. Bessie Austin, service representative, knew this and pointed out the advantages of keeping the extensions. "I only want the main line," the man said. Mrs. Austin talked some more. "Well, maybe one would be a help," the man agreed. Mrs. Austin offered further reasons why the man really needed both extensions. And, sure enough, he agreed and left his order for two extensions.

Such individual initiative is being shown by many telephone people. That's why extension sales programs are making gains.

Business office people offer extensions to customers placing orders for service. Plant folks are alert to selling opportunities in their daily work. Telephone saleswomen, trained in techniques of selling by telephone, call likely prospects.

To step up extension sales, commercial and plant people have come up with their own gimmicks.

Contests, for example, have spurred sales efforts. A recent one at the Webster Groves, Mo., business office took the form of a football game. Gains of each girl were charted on a large diagram of a football field. Shirley Schmidt, a freshman star of the team, outscored even the veterans to win the contest.

Telephone folks in Fort Worth, Tex., are proud of Mrs. Francis Harris, public office representative who has consistentlly piled up one of the top extension sales records in Texas' northwest division. In one contest, Francis' sales amounted to more than 25 per cent of the office total.

Efforts and achievements of this kind are important to every telephone company. Besides providing greater convenience and better service to customers, extension telephones mean more revenue for the company—thus greater job security for all.—(*Southwestern Bell Telephone News.*)

of each day. To facilitate the learning process, the students are given a comprehensive list of questions covering the entire program. At the conclusion of each day they are held responsible for an additional block of questions and will be quizzed accordingly the following morning.

Another company conducts most of its training tests orally. The conference leader or instructor is provided with a series of cards covering every essential phase of the program, each card having a question on one side and the answer on the back. These are used at intervals during every training session, care being taken to see that each member of the group is questioned.

Whatever form the tests take, the questions should be limited to the basic key points of the subject. While the "true or false" type of test has its place, most training leaders prefer to use questions that emphasize the practical application of the subject and require a complete expression of thought. Questions that encourage or suggest general discussions are avoided. And finally the tests should be graded and an opportunity given to clear up any questionable points.

Discussion: The final step in each training presentation is the discussion period. The primary objective of this phase is to summarize and clarify the key points of the subject. Thus the employes are given an opportunity to straighten out any questionable items that may have arisen during the period. One company gives a 10-minute quiz each morning on the previous day's assignments. It is corrected immediately and the results are discussed.

"Handling The Reporter"

THE PROBLEM: Proper handling of press interviews.

THE SOLUTION: Let's suppose your local newspaper has sent its star reporter to find out the "why's" and "wherefore's" of the big cutover you're planning.

As long as newspapers are primary sources of information — the best means of showing the public a true picture of your company and yourself — it's beneficial all around to give the reporter all the facts you can, as accurately as you can and as clearly as you can.

First let's say you have all the answers and you can give them freely. Now, don't bore him with every small detail relating to the subject. Give him the main facts. If he wants to fill in the chinks with minor matters, he'll ask for them. Otherwise, you're just wasting your time and his with some trifles that will never get into print. Don't try to color or stretch the facts. A good reporter recognizes these tactics and they throw suspicion on your whole case.

Possibly you have a good deal of printed material on the subject. But unless the reporter wants full details, don't load him down with volumes of formidable-looking documents because he won't have the time to wade through them. Instead, pick out a good short summary if it's available or mark important paragraphs for his special attention.

There'll possibly be a time, too, when a reporter asks for some data that you feel you should not divulge right then. Tell the reporter frankly that the information he seeks is confidential and, if possible, tell why it is confidential.

Probably you'll be able to give him the answer to his question later. If you tell him you'll provide the information as soon as it can safely be released, make certain that you do. It's a sure way to gain respect and confidence.

On the other hand, you may decide that the reporter should have that information "off the record." But be absolutely sure there's no misunderstanding — that the reporter knows when you go "off the record" and, equally important, when you go back "on the record."

Failure to let the reporter know when you're back on the record may keep him from using the information you mention later. Then, should a rival use that material, the reporter is going to feel that somebody double-crossed him.

Then comes the occasion when you haven't the answers. The reporter undoubtedly has run across this situation many times before, so don't try to be cagey and beat around the bush. Admit that you don't know, then be as helpful as you can. Make an effort to get the facts for him or make it possible for him to contact the best available source.

If the information isn't available at the time, take advantage of another rare opportunity to make an important friend. When the data the reporter seeks becomes available — even though it may be several days or weeks later — let him know at once. You'll establish yourself as a man of your word. But in all cases, answer the query as soon as it is possible.

Occasionally you might be asked for information on a subject requiring highly technical answers. Perhaps the reporter will ask you to check his copy as a precaution against errors. If he doesn't ask, don't hesitate to offer a helping hand. But if you do get the opportunity to look over the story before it is published, don't pretend to be an editor. Confine any suggestions to what you believe are clarifications of the facts you gave and don't try to pencil in any revision yourself unless the reporter requests it.

There are a couple of things to re-

(Please turn to page 54)

"Worth Repeating"

Training is everything. The peach was once a bitter almond; cauliflower is but cabbage with a college education.—*Mark Twain.*

• • •

The Greatest Thing in the world is not so much where we stand, as in what direction we are going.—*Oliver Wendell Holmes.*

• • •

"When You Know you are doing your job perfectly — look for ways to improve it— or someone else will."—*Martin Vanbee.*

• • •

All Things Come to him who waits—but not soon enough to do much good. — *Pick-up.*

• • •

A Good interview opens with expectation and closes with profit. — *Western Life News.*

• • •

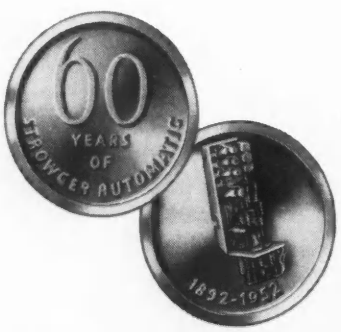
Great Souls have wills; feeble ones have only wishes.—*Chinest Proverb.*

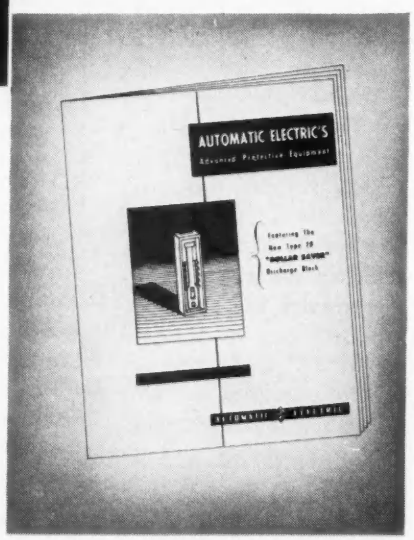
• • •

Tradition Should be a guide-post; never a hitching post. — *Wesleyan Christian Advocate.*

NEW TYPE 70 DISCHARGE BLOCK

NEW TYPE 18 SUBSTATION PROTECTOR

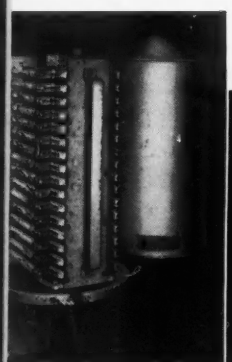


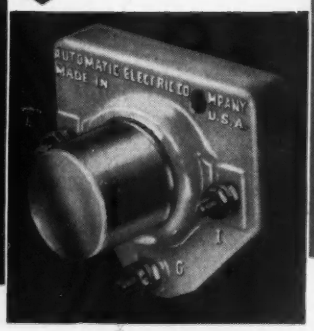


THESE AUTOMATIC ELECTRIC PROTECTIVE DEVICES ALSO FEATURE THE NEW TYPE 70 DISCHARGE BLOCK

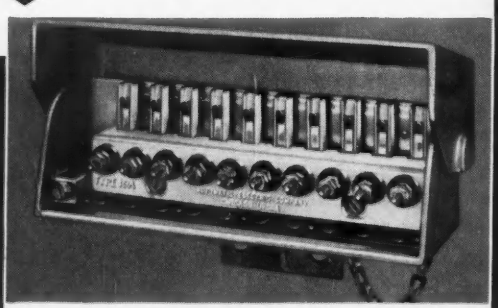
Type 35 Protected Cable Terminal

Type 16 Substation Arrester

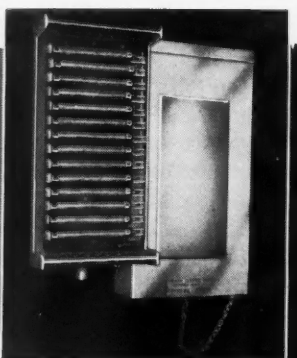




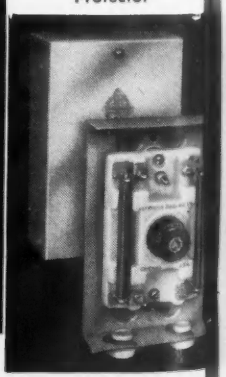
Type 19-A Crossarm Arrester



Type 40 Protector Cable Terminal



Type 20 Substation Protector



Automatic's

New Protective Equipment

brings you even greater economies

Our protectors have always proved exceptionally economical
—but this new equipment will give you even more surprising savings!

We *planned* our new Type 70 Discharge Block to *slash maintenance*
(that's why we call it the Dollar-Saver).
It is self-grounding, self-resetting,
and its metal-to-carbon gap does away with troublesome "dusting."
Type 70 grounds the line upon operation—
avoids excessive wear on the sawteeth and carbon blocks—
gives you *superior power-cross protection!*
Type 70 is featured in our new Type 18 Substation Protector,
in our Type 20 Substation Protector, Type 19-A Crossarm Arrester,
and Types 35 and 40 Protected Cable Terminals.

All our new, dollar-saving protective equipment is ready for you now.
It's fully tested in laboratory and field.

Our helpful new Protective Equipment Catalog is ready, too, with full details on our complete, extra-economical line. Write for Catalog 4068-B today!

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For PAX and PBX SYSTEMS
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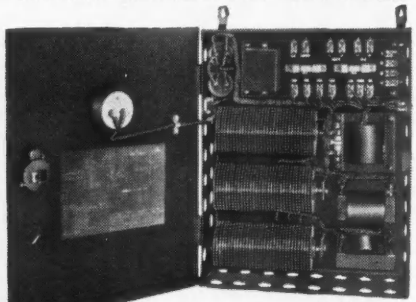
CONSTANT VOLTAGE BATTERY ELIMINATORS



TYPE RA

The most economical telephone power supply is an Electrox Battery Eliminator

Powered from your regular 110-volt lighting system.

Electrox Eliminators provide smooth, hum-free D. C. of required voltage — eliminating batteries.

Automatic operation. Output voltage remains practically constant, regardless of current drain. When desired, provision can be supplied to switch to emergency power source automatically.

Battery chargers and battery eliminators available in sizes and capacities to meet every power requirement.

See your Electrox Jobber. Write for free Bulletin 1465.

*T.M. Reg.

RECTIFIER DIVISION
SCHAUER
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4516 Alpine Ave. Cincinnati 36, Ohio

member about press conferences, too. Distribution to the press of copies of a prepared manuscript explaining the message you want to get across is splendid. But don't make the mistake of indicating that reporters can't read by reading the manuscript to them. Better spend the time answering questions that may arise on the manuscript and in case the questions get a little too specific, it's a good idea to have another company man or two around to help out, preferably the key man on the job under discussion.

Up to this point, let's say, you've conducted yourself perfectly; you've cooperated with a newspaperman to the best of your ability; he likes you; you like him. Then comes the whole fruition of your combined efforts; the story gets in print. If you're pleased with it, fine. Everybody's happy. If you're dissatisfied there's probably a reason. And maybe it's you. Don't make the mistake of complaining about it. Perhaps you didn't make your point clear enough. But more likely, the reporter found a more timely, fresh or interesting angle and used it. That's his job.

But if there's a really important mistake in the story, be sure to mention it to the reporter himself at the first opportunity. In the first place, you don't want him to make the same mistake again and neither does he. In the second place — if the error is serious enough — he'll probably make a correction, either in a separate little story or in another story dealing with a similar subject. But whatever happens, don't incur ill-will by complaining to the reporter's superior or to anyone else on the paper. It's a sure bet that you best help the reporters, the public, the company and yourself if you, in your contacts, keep in mind the "Four F's." Be Friendly, Frank, Fair and Factual.

"Behold, The Lineman"

LET us pause long enough in our griping about the severe weather to pay tribute to an unsung hero of the wintry storm: *the lineman.*

If you were one of the unfortunates at the tag end of power, telephone and gas facilities, and your telephone was dead, and your lights were out, and the furnace was cold for lack of gas, you underwent a hardship, indeed.

But you didn't undergo a tenth of the suffering experienced by that guy hanging on a high stick, handling hot stuff, just so you could burn your toast again, or chat with Aunt Mabel in Baltimore about the terrible weather we've been having up here.

Behold, the lineman: he riseth at 2:30 A.M. in his own heatless, phonless, powerless house, orders his wife and children into the same bed to keep them from freezing, then goeth out to do battle with the elements. He stumbles through knee-deep ice-crusted snow down a rural utility lead whose lines, weighted with tons of ice, have assumed an aspect of anarchy in a spaghetti factory.

His steel climbers are so cold they stick to his fingers as he straps them on his legs. He walks up a 35-foot pole that's sheathed with three-quarters of an inch of ice. His climbers kick out a half-dozen times on the way upstairs, and he grabs wood for dear life. At the crossarm, he fastens his safety belt, and hangs swaying in a frigid 30-mile gale, hauling your power or phone line back into place with hands so cold he can barely grasp his tools.

One ice-fractured circuit closed, he goes on to the next, and the next, and the next. Meanwhile, he helps a stalled motorist out of a drifted ditch, or perhaps finds an operative communications circuit in the copper snarl to summon emergency aid for a stricken woman at an isolated farmhouse.

It's a shame there were no phone or power lines around when Herodotus was eulogizing the mailman, for he surely would have been moved to do the same for the lineman. They live up to a great tradition in courage and hard work, which is becoming somewhat of a rarity these days. The magnificent jobs they are doing to restore service in the stricken areas attests to this truth. — *Reprinted from Easton, Pennsylvania, Express.*

In this issue Mr. Mitchell discusses — (a) Rolling Transposition; (b) Internal Resistance of Lead Acid Storage Cell, and (c) Low Voltage Direct Current Cross.

QUESTIONS and ANSWERS

Conducted by JAY G. MITCHELL

QUESTION: — *In a recent issue in a discussion of transpositions in a telephone circuit that was to be derived from the addition of the second conductor to an existing grounded circuit you stated that the cutting of transpositions in a metallic circuit would inevitably cause many additional joints to be introduced into the two line conductors. While this is true we have recently constructed some entirely new metallic circuits which were transposed by the rolling method while being strung. To our surprise we found that the interference from a paralleling supply circuit was not serious and with a little balancing we are sure will be practically eliminated. This method would not, of course, be adaptable for use in multicircuit leads but in our case the conditions were just right and we are very much pleased.*

ANSWER: — Supply circuits have, in many cases made use of the rolling transpositions with good results. In fact it is probably true that the transpositions of supply circuits by this method would go far to reduce the interference with telephone service now found in many places where the two services are parallel with each other. The rolling transposition, however, cannot be used where there are more than a few wires involved and in heavy telephone leads a comprehensive transposition plan must be worked out, an impossibility with any form of transposition other than the conventional one.

It still is the fact that in making transpositions in telephone leads exposed to interference from paralleling supply circuits extreme care must be exercised to insure that transposition joints in the conductors are carefully and consistently made. Otherwise the final circuits may be found to be unsatisfactory for reasons entirely aside from the interference of paralleling supply circuits.

QUESTION: — *In an issue of* FORTNIGHTLY TELEPHONE ENGINEER *you commented on the measurement of the resistance in ohms of a milliammeter. The method suggested is now clear to us but, as a matter of securing the most accurate result reasonably possible, we find it necessary to have some idea of the internal resistance of the one cell of storage battery that we have, since your comments came out, been using. It must be very low because the plates are about 7½ by 7½ inches, roughly, and there are seven plates in each cell. Stamped and directed envelope is enclosed for your convenience in making direct reply.*

ANSWER: — The internal resistance of any lead acid storage battery is dependent upon a number of factors and is not, by any means, constant. When the storage cell is in prime condition and is fully charged with the proper depth of electrolyte and efficient separators between the plates its internal resistance has one value. When the cell is discharged, assuming that the electrolyte is of the proper depth and the separators are good its internal resistance is of another value. In warm weather the internal resistance for both conditions are different from the value they would have in cold weather and so on. The internal resistance also varies with the condition of charge being of one value, for any given set of conditions, at intermediate points on the discharge which is different from the value of the resistance at full charge or full discharge.

In view of these factors, all of which affect the internal resistance, only an approximation is possible. The normal eight hour discharge rate for any given storage battery cell is determined by the size of the plates assuming that the electrolyte is of the proper depth in the cell, of the proper specific gravity and the separators in good condition. There is always one more negative plate in the conventional lead acid storage cell than there are positive plates. A workable rule for the determination of the normal eight hour discharge rate may be

A Pleasant Reminder

Telephone people never take the telephone for granted... never forget the remarkable value it provides for its users. Sometimes it is good to remind our friends outside of the business that telephone service does so very much and costs so very little. A message like the advertisement across the page -- appearing in February's national magazines -- has wings of its own.

Pennies for Wings

Every hour of the day or night, Sundays and holidays, the telephone stands ready to give wings to your words. The cost is small—just a few pennies a call.

BELL TELEPHONE SYSTEM

stated as allowing one ampere for each twenty square inches of superficial area of positive plates. Assuming that the plates are 7½ inches by 7½ inches the superficial area of one side of each positive plate is 7½ times 7½ or 56¼ square inches. On the *two sides* of each positive plate there will be exposed to the action of the electrolyte and opposite a negative plate 112½ square inches. In such a lead acid storage cell there may well be three positive plates and four negative plates. The total superficial area of positive plate, therefore, is three times 112½ square inches or 337½ square inches. In such a lead acid storage cell, therefore, the safe eight hour discharge rate is 112½ times three divided by 20 or 16.88 amperes.

Now it should be obvious that the internal resistance of any given type of lead acid storage cell is proportional to the superficial area of its plates because the larger the plates the greater the area of contact with the electrolyte which is a part of the conductor which is the complete cell. Also, as was shown above, the normal

IF YOU'D like quick help and technical and helpful opinion on some question, a postcard will bring you a reply.

rate of discharge for eight hours is determined by the same basis, the superficial area of the positive plates. On that basis the rough rule for computing the avearge internal resistance is as follows:

$$\frac{4}{10\ D} = R$$

Where "D" is the eight hour discharge rate.

In the assumed type of battery above this rule will result in a resistance in ohms of 4 divided by (16.88 times 10) or 4 divided by 168.8 or 0.0237 ohms.

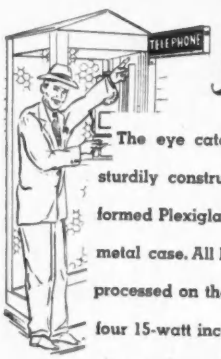
The resistance of a number of such lead acid storage cells connected in series will be, of course, the sum of the resistances of the individual cells. It should be emphasized that the rule given results in an approximation rather than an exact determination of the lead acid storage cell's resistance. It is sufficiently accurate, however, for use in most circuit design problems that are encountered in day by day operations.

QUESTION: — *Some time ago you published a series of articles on the use of the direct current voltmeter for telephone plant testing and we followed these articles with a great deal of interest. In order to improve our service, which has been said to be very good, we installed a wire chief's testing equipment using a high grade voltmeter with a 0 - 150 volt scale with a second scale and a third voltmeter binding post giving us a scale in addition to the principal one of 0 - 50 volts. The resistance of our voltmeter when on the 0 - 150 circuit is only 100 ohms per volt but we have worked out a tabulation based on your articles which gives us a very satisfactory range of resistances without any calculation. Of course in the cases when the voltmeter indication is not one of those included in our tabulation of indications against circuit resistances we make the calculation necessary using the formula given in your articles.*

A SIGN OF GOOD SENSE

. . . AND DOLLARS TOO!

OUTDOOR-OD-1



Illuminated

The eye catching OD-1 shown above is an outdoor sign sturdily constructed to withstand all kinds of weather. The formed Plexiglas faces of this sign are enclosed in a galvaneal metal case. All lettering is white on telephone blue background processed on the inside of the face. The OD-1 is illuminated by four 15-watt incandescent lamps and is 100% waterproof. This sign conforms to all Underwriter's outdoor specifications and comes equipped with a heavy-duty hanging bracket. Dimensions of sign are 7 3/4" high and 24 1/16" long.

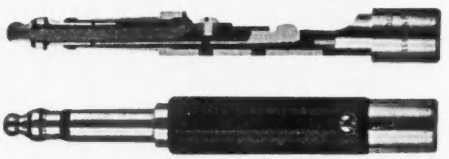
WRITE FOR FREE CIRCULAR TODAY

BUCKEYE TELEPHONE & SUPPLY CO.

1250 Kinnear Road — Columbus 8, Ohio

Avoid Shorts and Trouble

With TFA Plugs



The plastic insulation injected between the conductors stays solid. It covers the edge of the brass shell, positively preventing cause of most shorts. Invented, and used exclusively by TELEFON FABRIK AUTOMATIC A/S for over a generation.

These plugs provide unsurpassed precision in machining, solidity of construction, and high insulation safety.

Available as replacements for all popular two-and three conductor plugs.

Write for list, or order, from either United States distributor.

Sole Distributors in United States

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AMALIEGADE • COPENHAGEN, DENMARK

Now we have a condition that is puzzling us and your comment on the probabilities will be very much appreciated. One of our longer individual line circuits recently developed an annoying type of line noise which was very distasteful to the subscriber although the circuit was not entirely useless on this account and at times was just as quiet as it had ever been. When put on the test cord this circuit would show approximately 100 volts to earth on the ring side, our office battery is nominally 48 volts, and around 40 to 50 volts would be shown on the tip side to earth. These readings were obtained with the office test battery connected. When the circuit was tested with the office test battery cut off the two sides of the line circuit being tested would show around 40 to 50 volts to earth and at times would be clear. Any suggestions will be very much appreciated. Stamped and directed envelope is enclosed for your use in making direct answer.

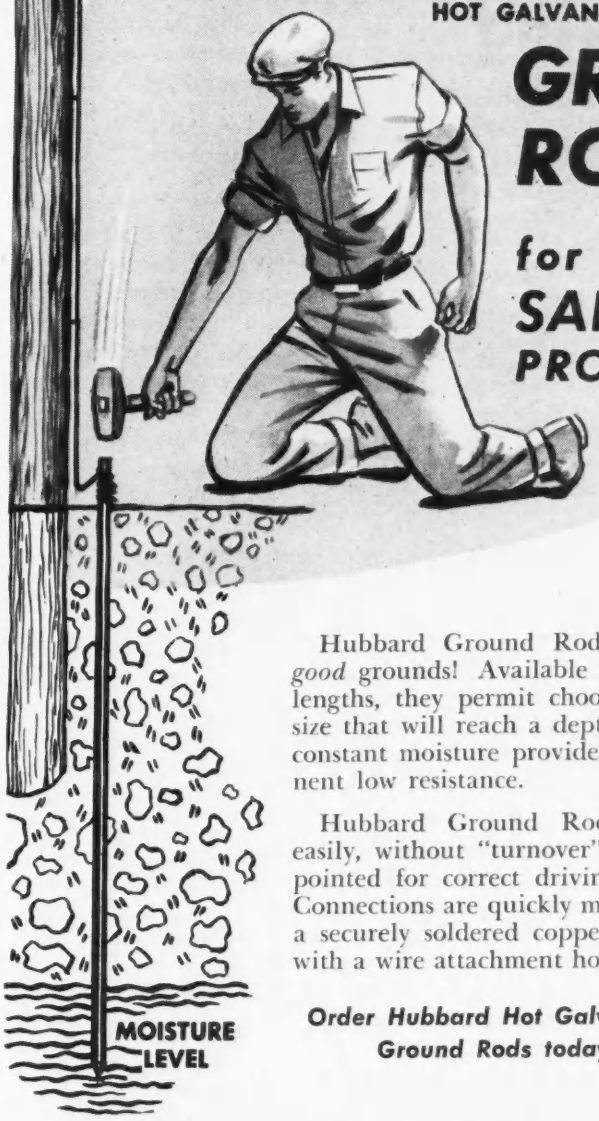
ANSWER:—This sort of line test result is puzzling under present conditions but would not have been so puzzling around the turn of the century. It is impossible, of course, to be entirely definite but it is my guess that the disturbing condition, which shows 40 to 50 volts direct current to earth is due to some intermittent cross with a telegraph circuit. The next best guess, in my opinion, would be a leak due to the passage of the telephone circuit in question through some trees that were in need of trimming along with a direct current trolley feeder. It would probably be well to check all the wires that were found along the route of the telephone circuit in question for possible leakage conditions outside and there have been similar instances in which an amateur telegraph circuit belonging to one of the family living in the house where the telephone station is installed that is in trouble is located. The final answer is to patrol every foot of the telephone circuit in question and look for some condition in which an intermittent cross may occur possibly only in wet weather.

QUESTIONS AND ANSWERS would appreciate it very much if you would write in again and describe the trouble actually found. This type of trouble is not so common today as it was in earlier times. — THE END.

Eliminate "Danger-Spot" Grounds!*

*(High-resistance grounds that do not drain destructive potentials safely to earth. Caused by rods to short to reach moisture-level.)

USE HUBBARD HOT GALVANIZED GROUND RODS for SAFE PROTECTION



Hubbard Ground Rods insure *good* grounds! Available in many lengths, they permit choosing the size that will reach a depth where constant moisture provides permanent low resistance.

Hubbard Ground Rods drive easily, without "turnover"—they're pointed for correct driving angle. Connections are quickly made with a securely soldered copper tail or with a wire attachment hole.

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Successful, highly effective kills are obtained at low cost. In addition to the economy of the operation, often there is more efficient use of available manpower. Permits brush clearance along lines in fields where susceptible crops hinder summer spraying. Recommended, too, for spot clearance.

These benefits are proven not only by intensive research on Thompson experiment stations but by the field experience of many REA Co-ops, electric and telephone companies along hundreds of thousands of miles of line.

WHAT TO USE

For utmost economy and assurance of positive kills, we recommend our specially developed, modern low volatile brush killers:

BRAMBLCIDE
2, 4, 5-T

BRAMBLE-WEEDICIDE
2, 4, 5-T—2, 4-D

These brush killers are non toxic for humans or animals. They contain HS-31 for extra creep and extra kill. They are unmatched for efficiency and economy by any other known product.

Please write for data sheet on mixing and spraying and for price schedule.

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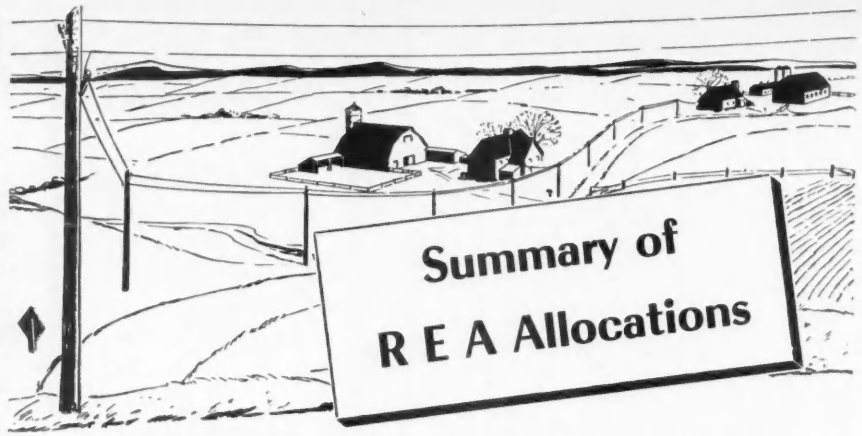

A monthly report of rural telephone loan allocations approved by the Rural Electrification Administration (REA).

COLORADO: — Wiggins Telephone Association, Wiggins, Colo. $64,000, second loan to this borrower. These loan funds will be used to cover the increase in construction costs since the first loan of $159,000 was approved in September, 1951.

As a result of the expansion and improvements possible under both REA loans, about 400 subscribers in Morgan and Weld counties will receive modern telephone service. The system will be designed to serve all establishments in the operating territory desiring telephones.

GEORGIA: On January 12, REA approved a loan contract with the *Bulloch County Rural Telephone Cooperative, Statesboro, Ga.*, in the amount of $453,000, an increase of $8,000 over the original allocation.

GEORGIA: — Sikes Telephone Co., Glenville, Ga., $3,000, second loan to this borrower. This supplemental loan compensates for a reduction in equity funds required from the borrower. This reduction was based on a revaluation of the applicant's present plant facilities since the original loan of $207,000 was approved in October, 1951. The rehabilitation and expansion afforded under the two REA loans will bring modern dial telephone service to 854 subscribers over 143 miles of line in Tatnall County. The completed system will be designed to serve all establishments in the area which desire telephones.

ILLINOIS: — Egyptian Telephone Cooperative Association, Steeleville, Ill., $860,000, to finance the improvement and extension of rural telephone service in Washington, Randolph, Perry and Jackson counties.

As a nucleus for its new system, the cooperative plans to acquire seven exchanges and other properties of telephone organizations now operating in the borrower's proposed operating area, totaling 254 miles of line serving 501 subscribers. The proposed acquisitions include: Oakdale Free Exchange Telephone Association, Stone Church Telephone Union, Elkton Exchange, Rice Farmers Mutual Telephone Comapny, Baldwin Telephone Company, New Palestine Mutual Telephone Company and Schuline Mutual Telephone Company.

The new system will be entirely dial with central offices at Rice, Baldwin, Lively Grove, Blair and Glenn. There will be no toll charges for calls between the Lively Grove and Rice exchange areas. The co-op will build 298 miles of new line to serve 1,575 additional rural subscribers.

When completed, the system will consist of 519 miles of line serving 2,076 subscribers. It will have facilities to serve any establishment in the area that wants a telephone.

ILLINOIS: *Manhattan Telephone System, Manhattan, Ill.*, $195,000 loan allocation to improve and expand telephone service in rural areas of Will County.

The newly-formed commercial company is planning to acquire the telephone properties of the *Manhattan Telephone Co.* of Manhattan, consisting of 112 miles of line furnishing magneto service to 541 rural subscribers. The applicant proposed to build 4 miles of new line, rebuild 103

of the acquired line and convert the system to dial operation. Facilities will be provided for approximately 70 additional subscribers.

The completed system will consist of 110 miles of line and will have basic plant facilities to meet the needs of all potential subscribers in the area.

INDIANA: — Smithville Telephone Co., Ellettsville, Ind., $336,000, to finance the improvement and expansion of telephone service in rural areas of Monroe County.

The company now provides magneto service to 110 rural subscribers over 12 miles of line. The loan funds will be used to acquire from the Monroe County Telephone Company at Ellettsville, the Clear Creek Exchange, furnishing common battery and magneto service to 355 subscribers over 39 miles of line and build 88 miles of new line. The Clear Creek and Smithville exchange areas will be combined and one new automatic dial central office constructed near Smithville. The applicant is contemplating service without toll charge between the new central office and Bloomington, nearby trading center.

Completed, the system will consist of 119 miles of line providing modern telephone service to 1,311 rural subscribers, including 846 now without telephones. It will have basic plant facilities to meet the needs of all potential subscribers in the operating area.

KANSAS: — The American Communications Co., Haddam, Kans., $148,000, the second loan to this borrower. This loan will be used to finance the construction of 82 miles of new line and rehabilitation of 54 miles necessary under revised plans of the borrower. It will also cover increased construction costs since the original loan of $198,000 was approved in July, 1951.

Over 800 rural homes and establishments in Washington and Republic Counties will receive modern telephone service as a result of the rehabilitation and expansion under the two REA loans. The completed system will operate 309 miles of line and will be designed to serve all establishments in the area which desire telephones.

Haviland Telephone Co., Haviland, Kans., $141,000 loan, to improve and expand rural telephone service in Kiowa and Pratt Counties.

The Haviland Company has been in individual proprietorship and recently incorporated. It furnishes magneto service to 290 subscribers over 92 miles of line and provides switching service for 20 stations on 20 miles of farm-owned lines.

The loan funds will be used to acquire the Wellsford Telephone Exchange service 52 subscribers over 38 miles of line, build 110 miles of new line, convert the Haviland central office to dial operation and provide facilities to serve 48 subscribers now without telephones. The Haviland office will serve the Wellsford exchange area.

The completed system will furnish modern telephone service to 390 subscribers over 138 miles of line, and in addition furnish switching service to the 20 service stations.

MICHIGAN: — Peninsular Telephone Co., Traverse City, Mich.,

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This popular saw is made in 20 and 24-inch lengths. Equipped with a special extra-large handle. Tuttle tooth design is excellent for large cuts.

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Two styles of teeth on same cutting edge. 10-inch section at point of blade has 6 points per inch. Balance of blade has large teeth similar to tuttle tooth.

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Widely used for many years by arborists, the No. 27 26-inch has 5 points per inch, beveled forward. Also made in 28-inch length known as our No. 28.

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Our exclusive design provides big, husky cutting teeth with 4 points per inch. Fast cutting and easily sharpened. No. 124B has 24-inch blade. If 26-inch blade is preferred, specify No. 114BD.

No. 114B Special Utility

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A very popular all-purpose pruning saw, No. 127 is available in 18, 22, 24 and 26-inch lengths.

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$51,000, the second loan to this borrower. These loan funds will be used to cover the increase in construction costs since the first loan of $103,000 was approved in March 1951. The completed system, under revised plans of the borrower, will consist of 40 miles of line providing modern telephone service for 288 subscribers in Grand Traverse County.

MICHIGAN; — *Treverse Bays Telephone Co., Central Lake, Mich.*, $440,000, the second loan to this borrower. Approved Jan. 14.

These loan funds will be used for the construction of 28 miles of new line and added facilities to furnish modern telephone service to 166 existing subscribers and 1,010 new subscribers not included in the original loan of $371,000 approved in May 1951. Under revised plans of the borrower, eight instead of four automatic dial central offices will be installed. The central offices will be at Alden, Atwood, Bellaire, Central Lake, Clem River, Eastport, Ellsworth and Torch River.

Service without toll charge will be available among all of the exchange areas of the system. In addition, these loan funds will cover the increased costs involved since the first loan was approved. Progress under the first loan is rapid. Since construction was started, the demand for service has expanded greatly.

A total of 2,376 subscribers — including 1,588 now without telephones — in Antrim County will receive modern telephone service as a result of the expansion and modernization possible under both REA loans. The completed system will operate 200 miles of line and will be designed to meet the needs of all establishments in the area desiring telephones.

REA Telephone Loan Program

In the budget submitted by former President Truman to the 83rd Congress was the following table on the REA telephone loan program:

	1952 actual	1953 (est)	1954 (est)
Total loan allocations, cumulative	$82,260,000	$117,736,000	$182,736,000
Allocations, annual	$41,005,000	$ 35,476,000	$ 65,000,000
Number allocations, cumulative	211	331	531
Number allocations, annual	96	120	200
Number contracts, cumulative	99	249	444
Number contracts, annual	71	150	195

MINNESOTA: — *Paul Bunyan Rural Telephone Cooperative, Bemidji, Minn.*, $452,000 to improve and expand telephone facilities in rural areas of Beltrami and Hubbard Counties. Approved Jan. 13.

The new cooperative plans to acquire the properties of the Kelliher Telephone Co., serving 107 subscribers, and 10 small switcher companies, serving 225 stations. Of these stations, 193 are now being switched by Kelliher, and 32 through LaPorte.

The REA borrower proposes to build 145 miles of new line, convert the system to dial operation and install a new dial central office at Guthrie. The expanded and improved facilities will furnish modern service to the 332 present subscribers and extend it to 380 rural families now without telephones.

The completed system will consist of 332 miles of line, and will be designed to handle all potential subscribers in the operating area.

MINNESOTA: *Pine Island Telephone Co., Pine Island, Minn.*, $88,000, the third loan to this borrower.

The loan funds will be used to expand and improve the telephone service now provided by the Oronoco Telephone Co. in and around Oronoco. That company has agreed to continue its present magneto service to 110 subscribers on 40 miles of line until the Pine Island Telephone Co. can complete installation of dial facilities, at which time operating rights will be conveyed to the Pine Island Co. and the old facilities removed. The new facilities will consist of a dial exchange at Oronoco serving 207 subscribers from 51 miles of line.

Construction under earlier loans to

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the Pine Island Co. is progressing rapidly. It is expected that some of the new dial facilities can be placed in service around the first of March.

This company will provide dial service to 955 subscribers in Goodhue, Dodge and Olmsted Counties from 173 miles of line. There will be service without toll charge between the Pine Island and the new Oronoco exchange areas.

NEW MEXICO: *Penasco Valley Telephone Cooperative, Hope, N. M.*, $588,000, to improve and expand telephone service in rural areas of Eddy, Otero, Lincoln and Chavez Counties.

As a nucleus, the recently-organized cooperative proposes to acquire the *Hope Telephone Co.* facilities consisting of 46 miles of toll and exchange line serving 27 subscribers.

The loan funds will be used to build 585 miles of new line and install new automatic dial central offices at Hondo, Hollywood, West Capitan, Mayhill, Lakewood, Cottonwood and Hope. As a result of the new construction, modern service will be afforded the present subscribers and extended to 553 now without telephones. In addition, the cooperative will have as regular subscribers 27 families now receiving switching service only.

There will be no toll charge for calls between the Hondo, Hollywood and West Capitan offices.

The completed system will consist of 585 miles of line furnishing modern telephone service to 607 rural subscribers. It is being designed to meet the needs of all potential subscribers in the operating area.

NO. CAROLINA: *Randolph Telephone Co., Liberty, N. C.*, $350,000 loan to improve and expand rural telephone service in Randolph, Chatham, Alamance and Guilford Counties.

The funds from this loan will be used to finance the conversion of the existing system, serving 335 subscribers, from magneto operation to dial, and to build 145 miles of new line to serve 622 new subscribers.

The completed system will consist of 180 miles of line providing modern service to approximately 960 rural subscribers. It will be designed to meet the needs of all potential subscribers in the operating area.

OREGON: — Dayville-Canyon Telephone Co., Mt. Vernon, Ore., $250,000 loan, to finance the improvement and expansion of telephone service in rural areas of Grant County.

The applicant now owns a system of 67 miles serving 221 subscribers through a dial central office at Dayville and a magneto office at Mt. Vernon. The borrower plans to acquire the Bradford Telephone Lines, Prairie City, Ore., providing service to 187 subscribers over 25 miles of line which the applicant now operates under lease. Using the loan funds, the borrower will replace the Mt. Vernon and Prairie City central offices with new dial facilities, rebuild all of the existing and acquired line, and add 11 miles of new line. A total of 586 subscribers—including 178 now without telephones—will receive modern dial service as a result of the rehabilitation and expansion. There will be service without toll charge between the Dayville and the Mt. Vernon exchange areas.

PENNSYLVANIA: At the request of the borrower, REA rescinded a loan

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LINE EQUIPMENT SALES

The House of Bargains

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allocation of $158,000 approved on June 30, 1950, to the *Hopewell Independent* Telephone Co., Aliquippa, Pa.

SOUTH CAROLINA: — Herry Telephone Cooperative, Conway, S. C., $1,019,000 loan, to improve and expand rural telephone service in Herry and Georgetown Counties.

As a nucleus, the newly-formed cooperative plans to acquire four miles of line from the Seacoast Telephone Company at Little River, 33 miles of line from the South Carolina Continental Telephone Company at Conway, and the telephone properties of the Coastal Telephone Company at Loris, all of which are now furnishing dial telephone service to 355 subscribers over 87 miles of line.

The loan funds will be used to build 540 miles of new line and rebuild 43 miles of the acquired line. New automatic dial central offices for the system will be located at Conway (rural subscribers only), Ayner, Floyds Church, Longs, Loris and Murrells Inlet. As a result of the rehabilitation and expansion under the REA loan, 1,653 rural subscribers now without telephones, will receive modern service.

Service without toll charge is planned between several of the applicant's exchange areas, and similar service is contemplated for each area and its nearby trading center.

Complete, the system will consist of 602 miles of line furnishing modern telephone service to 2,008 subscribers. It will have basic plant facilities to meet the needs of all potential subscribers in the operating area.

TENNESSEE: *Yorkville Mutual Telephone Co., Yorkville, Tenn.*, $67,000, the third loan to this borrower.

These loan funds will be used to cover the increased costs of rehabilitation and expansion of existing facilities in connection with the first loan of $124,000 approved in January 1952. Construction on this portion of the line is proceeding satisfactorily.

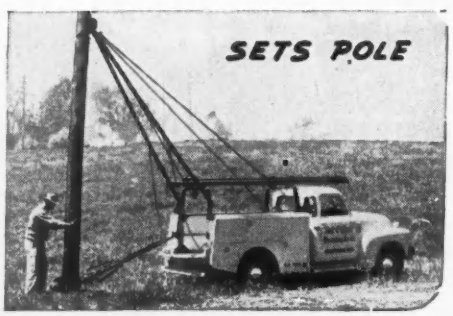
This system, when entirely complete, will bring modern telephone service to over 800 rural families and establishments in Gibson and Dyer Counties.

TEXAS: *Medina Telephone Cooperative*, (successor to *Medina Rural Telephone Co.*), *Medina, Texas*, $127,000, the second loan to this borrower.

These loan funds will be used to cover the increase in construction costs since the first loan of $136,000 was approved in December, 1950. As a result of the rehabilitation and expansion possible under both REA loans, 364 rural subscribers in Bandera County will receive modern telephone service. According to present plans, there will be no toll charge for calls between the Medina central office and Bandera, nearby trading center.

The completed system will consist of 115 miles of line, and will be designed to serve all establishments in the operating area which desire telephone service.

TEXAS: — South Plains Telephone Cooperative, Lubbock, Tex., $135,000, second loan to this borrower. The applicant proposes to acquire from the West Texas Telephone Company the telephone facilities serving 61 subscribers in Edmonson and the adjacent territory. This section, com-



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bined with a small portion of the area included in the first loan, will form a new exchange area of the South Plains system.

In order to integrate the acquired facilities with the whole line the applicant plans to construct a new central office building at Edmonson, replace the dial switchboard with a larger one, build 56 miles of new line, and rebuild 6 miles of the acquired line. There will be service without toll charge between the Edmonson and Halfway exchange areas of the South Plains Telephone Cooperative system. The expanded facilities, consisting of 113 miles of line, will provide modern telephone service to 157 rural families and establishments, including 61 acquired subscribers.

The 61 new subscribers are in addition to the approximately 2,500 ultimately to be served in Lubbock, Hale, Floyd and Crosby counties for whom facilities were provided in the first REA loan of $1,227,000 approved March 1951. On the basis of new engineering surveys, the system now being constructed with funds from the first loan will consist of about 1000 miles of line and 11 dial exchanges, instead of somewhat larger totals originally scheduled. The first of these exchanges was placed in service on Dec. 13, 1952.

TEXAS: — *Taylor Telephone Cooperative, Merkel, Texas,* $394,000, second loan to this group. Approved Jan. 16.

This supplemental loan, together with the first loan of $991,000 approved in Oct. 1951, will be used to improve and expand telephone service in rural areas of Callahan, Jones, Runnels, Shackelford and Taylor Counties.

The co-op plans to acquire the Hawley Telephone Exchange, Buffalo Gap Telephone Exchange, Bradshaw Telephone Exchange, and the Tuscola Telephone Exchange, consisting of four magneto exchanges serving 352 subscribers and 12 switchers. In addition, the borrower has arranged under the first loan for the acquisition of small telephone properties furnishing service to 260 subscribers.

With the loan funds, 908 miles of new line will be constructed and 12 automatic dial central offices installed, instead of nine as planned in the first loan. These facilities will fur-

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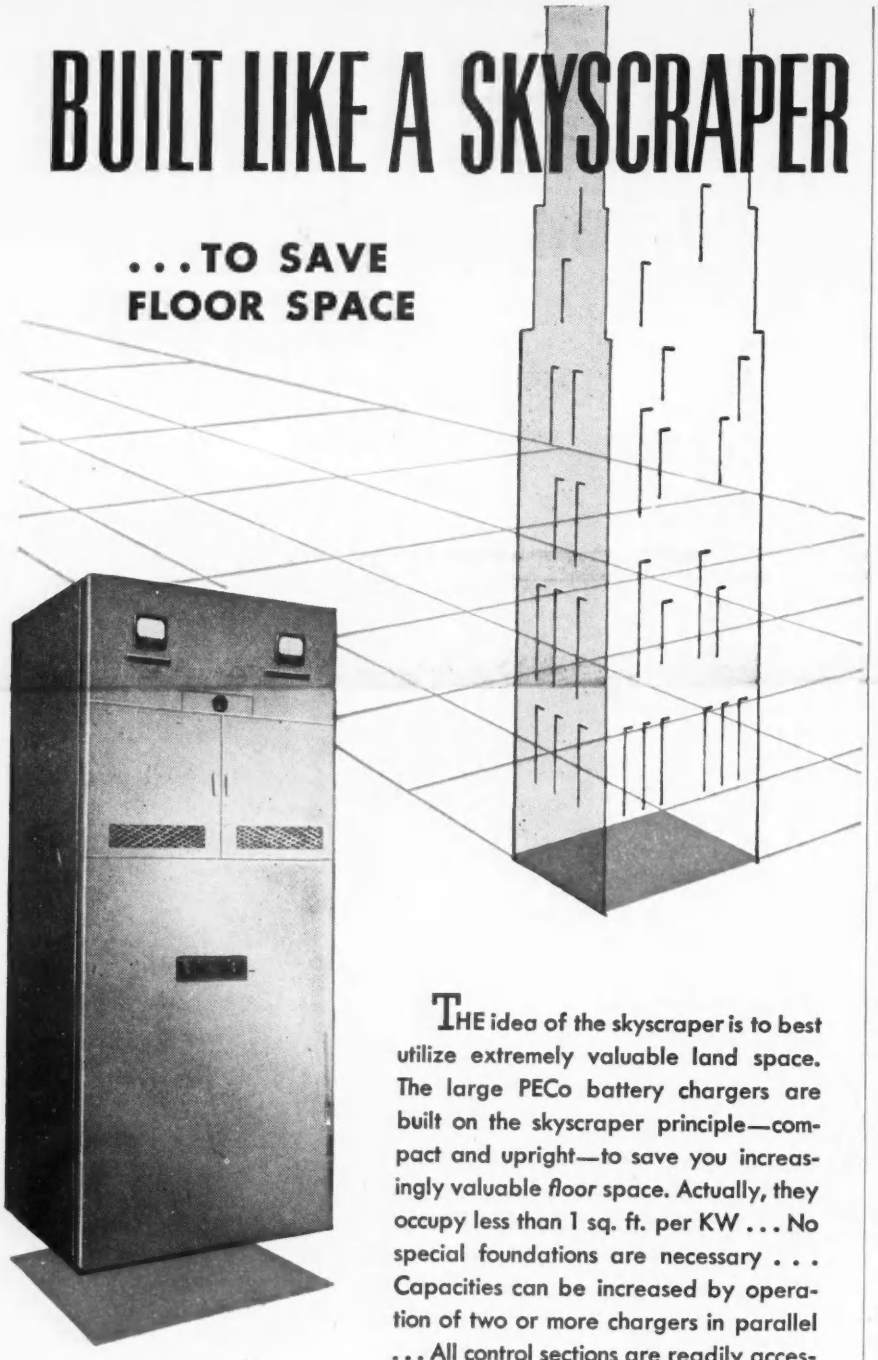

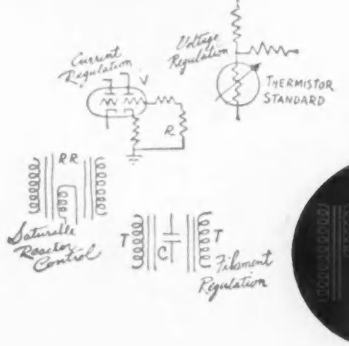

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nish modern telephone service to a total of 2,243 subscribers, including 363 not provided for originally. At present, 1,619 of these subscribers, are without telephones. The central offices will be at Hamby, Nolan, Hawley, Potosi, South of Lawn, Buffalo Gap, Tuscola, Bradshaw, Noodle, Nubia, Wingate, and Capps-View. Service without toll charge is contemplated between each of the exchange areas and its nearby trading center.

When rehabilitation and new construction have been completed, the system will consist of 1,087 miles of line. It will be designed to met the needs of all potential subscribers in the operating territory.

UTAH: — South Central Utah Telephone Association, Richfield, Utah, $340,000 loan allocation to improve and expand rural telephone service in Garfield, Kane, Piute, Sevier, Millard, Beaver, Wayne and Iron Counties.

The newly reorganized cooperative proposes to acquire the assets of the Escalante Telephone Company which provides magneto service to 78 subscribers over 83 miles of line and switching service to 35 stations on farm-owned lines.

With the REA loan funds the applicant plans to build 112 miles of new line, convert the present system to dial and install new dial central offices at Koosharem, Antimony, Tropic and Orderville.

About 550 subscribers now without telephones will receive service as a result of the new construction.

According to present plans, service without toll charge will be available between the Escalante and Tropic exchange areas. Similar services between the Antimony and Koosharem areas will be arranged through the use of power line carrier facilities. Because it would be difficult and expensive to reach some of the subscribers in the Escalante exchange area with conventional telephone line, it is proposed to use radio-telephone equipment in some parts of this region.

When the new system is completed, 662 subscribers will receive modern dial service over 125 miles of line. Basic plant facilities will be able to handle all potential subscribers in the operating area.

Industry News Briefs

(Continued from Page 18)

and in the volume of toll traffic per station, the net income of (Hoosier) after operating expenses, depreciation, taxes, and interest, will be insufficient to repay the mortgage indebtedness plus interest."

In its action, the commission "froze" the "equity" of Hoosier, which was to consist of loans of $286,000 from several Indiana electric co-ops. The REA loan allocation for purchase of the "west side" properties is $6,618,000.

During the hearings before the commission, the Indiana Bell Telephone Co. expressed itself as willing to serve the territory if the co-op did not take over the properties for any reason. Prior to the filing of the appeal, the co-op and REA were put on notice that the case would be taken to court, so that they would not incur expenditures which might be invalidated later by court action.

Election of a new officer of Motorola Inc. has been announced by PAUL V. GALVIN, president. JOHN SILVER (above), formerly general manager of the Communications & Electronics Division, is elevated to the position of vice-president in charge of operations of the division. Mr. Silver joined Motorola in 1944 and was appointed general manager of the Communications & Electronics Division in 1949. Prior affiliations included 12 years in engineering at Crosley Radio Corp. and several years as chief production engineer for Collins Radio, Cedar Rapids, Ia. A native of Cincinnati, Ohio, he received his bachelor of science degree in Engineering from Ohio State University, and a master's degree in Business Administration from the University of Chicago.

High Court Voids Rate Rise Denial To Illinois Bell

THE ILLINOIS SUPREME Court ruled Jan. 22 that the Illinois Commerce Commission was "unreasonable" in refusing a $22,800,000 rate increase to Illinois Bell Telephone Co. The court ordered the commission to reopen the case.

The Supreme Court affirmed an order of the Kane county circuit court which set aside the commission order of December 1951. The order had canceled the rate increase.

"We are of the opinion that the findings of the trial court, that the commission's order canceling the new rate schedules is unreasonable, is against the manifest weight of the evidence and is without substantial support in the evidence, are borne out by the record," the Supreme Court said.

"We are further of the opinion that the commission committed error in failing to make specific findings of the element of reproduction costs new of the company's property," it said.

The court opinion, written by Justice Ralph L. Maxwell of Nashville, did not say how large a rate increase it believes Bell should get. But the discussion of rates, accounting methods and public utility law made it clear the court felt the company was entitled to higher rates than it now has.

Illinois Bell originally filed for the rate increase Jan. 12, 1951. The commission held a long series of hearings and in orders Dec. 10 and Dec. 12, 1951, it turned down the rate plea.

The City of Chicago filed an appeal in Cook county superior court, which resulted in an order holding the I.C.C. had no jurisdiction to even have considered the case because Bell had a rate increase less than two years previously.

Meanwhile, the company appealed

Stays Up
Extra Years

Because . . . . . .

★

It Has Heavier
Coating of Zinc

Drawing of wire vertically through bath allows more zinc to hang on.

★

It Has Purer
Coating of Zinc

Oxide scum on bath does not come in contact with wire — therefore zinc on wire is oxide free.

★

Core Is Made of
Copper Bearing Steel

Small content of copper in steel makes it rust resisting.

• • • • • • • • • • •

Standard Strength BB
High Strength BB

Keystone Wire
from

See Your SUTTLE Catalog

Serving Independent Telephone Men Since 1910

Suttle EQUIPMENT CO.

LAWRENCEVILLE ILLINOIS

The General Telephone Directory Company recently held a sales conference for its Eastern Area representatives at the Orrington Hotel, Evanston, Ill. Shown above are: — Seated left to right, W. E. CATHERS, trade mark supervisor; J. E. ELAM, Michigan sales supervisor; TED J. HERRON, Wisconsin sales supervisor; JOHN E. UNCAPHER, Ohio sales supervisor; E. T. JORDAN, general sales engineer; D. B. SIMPSON, division sales supervisor; LELAND J. MAST, assistant vice-president; O. D. SWANSON, Eastern publishing manager; DEAN R. PORTER, assistant publishing manager; CARL EISENTRAUT, printing superintendent; WILLIAM GOODWIN, Southern Illinois sales supervisor; FRED CUNNINGHAM, Pennsylvania sales supervisor; MARSHALL SMITH, Kentucky sales supervisor; D. E. LaMASTER, Eastern sales manager. Standing are: (left to right) HENRY WORTH, sales office supervisor; O. B. LLOYD, vice president and general manager; J. S. RICHER, Indiana sales supervisor; FRANK DAVIES, president; C. H. FERGUSON, Southern Illinois sales supervisor; WALTER WEIR, Missouri sales supervisor; L. A. BUCKLAND, division sales supervisor; J. G. SCIRCLE, New York sales supervisor; and BERT BALLINGER, art director.

the commission decision in Kane county. Here it was held the commission was "unreasonable" and its order was vacated. Both cases were consolidated in the appeal to the Supreme Court.

The Supreme Court held that the law does not bar a utility from seeking more than one rate increase within a two-year period. It also ruled that the Kane county circuit court had prior jurisdiction over the Bell case rather than the Cook county superior court.

The high court's opinion went into a detailed review of the commission findings. Much of the opinion centered around the factor of assuring the utility of a "reasonable return" on its investment.

"It is evident that in the exercise of its sound discretion, the commission, in the fixing of reasonable rates as required of it by law, must necessarily consider among other things, the factor of a reasonable return on the capital," the opinion said.

"In the final analysis, the rates fixed by it . . . should be sufficient to provide for operating expenses, depreciation reserves that are necessary in good business judgment and operations, and a reasonable return to the investor on the basis of the fair value of the utility property."

The Supreme Court was critical of some of the commission's positions on accounting methods. It said the commission held it should use only the value of the investment as a basis for fixing reasonable rates — and also has pointed out "that one of the principle factors which enters into fixing valuation of a public utility is the rate of return itself."

"This statement at first blush has a deceptive quality of truth," the Supreme Court said. "Its best criticism is that it creates an inextricable circle, providing no beginning nor any basis for fixing a rate of return other than the nebulous formula 'that when all things are considered the rate should be just and reasonable and provide a reasonable return on the investment.' "

The high court said it was not "the office of the judiciary to fix utility rates" and ordered the I.C.C. to "conduct further proceedings not inconsistent herewith."

Completing a 4½ month's world tour, MR. and MRS. G. A. PETERSEN of Petersen Engineering Co., Santa Clara, Calif., arrived at San Francisco's International Airport on British Commonwealth Pacific Airways flight from Sydney, Australia, via Hawaii. During the 35,000-mile tour, Mr. Petersen introduced the Pengo Auger and other Pengo products to utility and telephone company officials in 17 countries. The enthusiastic reception accorded the Pengo line resulted in arrangements for the manufacture of Pengo Augers and other Pengo products in Great Britain and Australia.

Col. Andrews Retires From Active Duty

Col. Fred P. Andrews, whose 35-year military career included two tours of command of the Alaska Communications System, has retired from active military duty, the US Army Signal Corps announced.

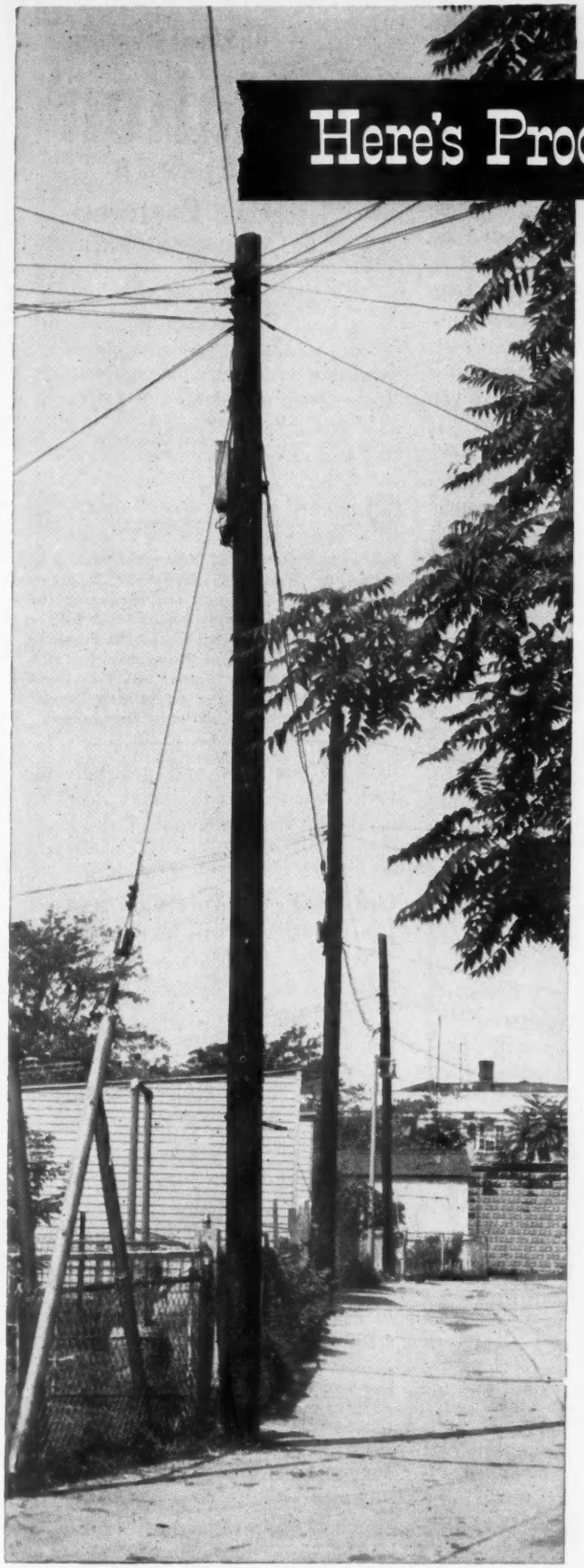
Commissioned in June, 1917, Colonel Andrews served with the AEF in France during World War I. After being in retired status from 1935 until 1940, he was recalled to active duty and named commander of the ACS. After another period of retirement from 1946 to 1948, during which time he served as Executive Vice President of Press Wireless, Colonel Andrews again returned to active military status to command the ACS until his recent retirement.

Missouri Co-op Announces Huge Purchase Plan

THE GRAND RIVER Mutual Telephone Corp., Trenton, Mo., announced it has contracted for the purchase of telephone properties in 30 towns in Northern Missouri and Southern Iowa.

The properties acquired now serve Bethany, Blythedale, Brimson, Cainsville, Gilman City, Jamesport, Mercer, Mount Moriah, Princeton, Ridgeway, Galt, Laredo, Chula, Spickard, Tin-

(Please turn to page 70)



Here's Proof of Performance...

Over 99% of the poles installed by the Chesapeake & Potomac Telephone Co. in Washington, D. C. are Pressure-Creosoted

IN 1930 the Chesapeake & Potomac Telephone Company turned to pressure-creosoted poles to secure longest possible life for their 67 square mile network of telephone poles in the Washington, D. C., area. The three poles shown here, located in an alleyway between 16th and 17th Sts., S. E., have been in service since that time and are good for many additional years' service.

Pressure-creosoted poles are inspected every six years until they have been in service 17 years and every three years thereafter. On the basis of these inspection tests, the Company feels it should realize at least 30 to 35 years of service out of each pole.

When you choose a wood preservative, let records like these be your guide.

Creosote Oil contains not one but many compounds whose toxicity and permanence ward off attack by such wood destroyers as termites, fungi, dry rot and marine borers.

When you use treated wood, be sure it is pressure-creosoted with U·S·S Creosote Oil—a product of the world's largest tar distillation plant. For complete information, contact our nearest Coal Chemical sales office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

U·S·S CREOSOTE OIL

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UNITED STATES STEEL

Runzel... Precision made

TELEPHONE CORDS

Precise in every detail... leg length, trim, terminals, tracer color and stay fastener... Runzel cords make installation a routine matter. Installers like them because they simplify their work.

Subscribers prefer Runzel cords because of clarity of reception and the longer, trouble-free service they give.

There's a Runzel cord for every type and make of instrument.

Write for your copy of Runzel Telephone Cord Catalog.

Operators too, prefer Runzel Cords.

RUNZEL
Cord and Wire Co.
4723 W. MONTROSE AVE.
CHICAGO 41, ILL.

dall, Dunlap, Ravanna, Martinsville, Brooklyn and Eagleville, in Missouri, and the towns of Allerton, Clio, Davis City, Garden Grove, Lamoni, Leon, Lineville, Pleasanton and Weldon in the state of Iowa. The properties were acquired from Middle States Utilities Co. of Missouri, Middle States Utilities Co. of Iowa, Galt Telephone Co., Eagleville Telephone Co., Ravanna Telephone Co., Terry Telephone Co., Laredo Telephone Co., and Chula Telephone Co.

The Grand River corporation is a Missouri corporation with its registered office at Trenton, Missouri. It has received an $896,000 loan from the Rural Electrification Administration to acquire a part of the properties. It has an application for an additional loan to cover the balance of these properties. The new loan is expected within the next few weeks.

Attorneys for the corporation have estimated that the total loan funds required from REA would approximate $5,000,000.

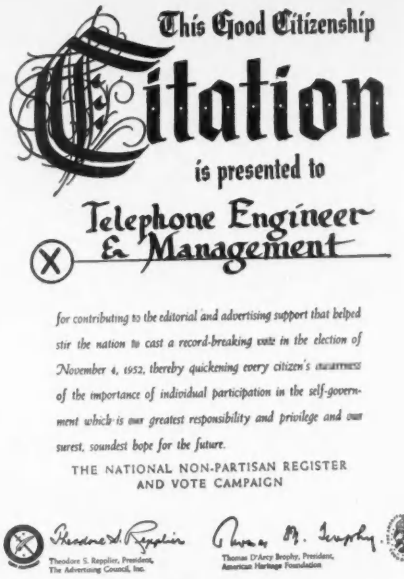
The officers and directors of the corporation are: J. R. Lowry, Princeton, Missouri, president; Harry John, Ridgeway, Missouri, vice president; Clarence Ratliff, Trenton, Missouri, secretary; Harley Leazenby, Mount Moriah, Missouri, assistant secretary; Ralph Parker, Trenton, Missouri, treasurer; Ray Barnett, Princeton, Missouri; Maurice Hein, Spickard, Missouri; Everett May, Harris, Missouri; Rollin Ryan, Powersville, Missouri; Emmett Wiley, Garden Grove, Iowa; and Clayton Shelton, Lineville, Iowa.

Lowell B. Moore, of Trenton, Missouri, has acted as co-ordinator for the new company for the past two years.

Canadian Bell Stockholders Consider Stock Increase

Stockholders of the Bell Telephone Co. of Canada, at their annual meeting on March 12, will be asked to approve an increase in the authorized capital stock of the company from $300,000,000 to $500,000,000, the limit set in June, 1948, by the Canadian Parliament.

A company statement said that approval of the stockholders would authorize directors "to effect such increase and to issue and dispose of the $200,000,000 new capital at such time, on such terms and conditions,


This Good Citizenship
Citation
is presented to
Telephone Engineer & Management
for contributing to the editorial and advertising support that helped stir the nation to cast a record-breaking vote in the election of November 4, 1952, thereby quickening every citizen's awareness of the importance of individual participation in the self-government which is our greatest responsibility and privilege and our surest, soundest hope for the future.
THE NATIONAL NON-PARTISAN REGISTER AND VOTE CAMPAIGN
Theodore S. Repplier, President, The Advertising Council, Inc.
Thomas D'Arcy Brophy, President, American Heritage Foundation

The award for Good Citizenship was presented to TELEPHONE ENGINEER & MANAGEMENT for its part in contributing to the editorial and advertising support that helped to stir the nation to cast the record breaking vote in the election of November 4, 1952. This was part of the Register and Vote Campaign sponsored by the Advertising Council and the American Heritage Foundation.

in such amounts and generally in such a manner as they may deem to be in the best interests of the company."

Cuban Telephone Company Plans $40 Million Expansion

THE CUBAN Telephone Co., an associate of the International Telephone & Telegraph Corp., has under contemplation a $40 million program for the expansion and development of local and long distance telephone service in Cuba. A major amount of new financing will be required and negotiations are in progress between the company and the Export-Import Bank of Washington for the latter's participation in this undertaking.

The program is contingent upon favorable action by the Cuban Government on pending applications for concession review including tariff relief.

Kansas Independent Plans Expansion Program

A THREE-YEAR program of expansion and improvement will be launched this year by the Mutual Telephone Co., Eudora, Kans. George Bartz, manager of the company, said enlarging of cables is one phase of the improvement. Plans call for the replacement of all the trunk cables leading to the telephone exchange

with larger cables, providing circuits and making it possible to up-grade service to some subscribers. Expansion of cables will make it possible for the company to serve new homes now under construction in Eudora.

The expansion project calls for replacement of the few remaining one-wire telephone circuits with the two-wire metallic circuits. About 10% of the Eudora telephones are now on the one-wire system.

The expansion program will be financed by the sale of common stock on a pro-rata basis to present stockholders. Balance of the funds will be made up from funds from cash on hand, depreciation funds and future earnings.

Officers of the company are: E. R. Roe, president; Henry Kurtz, vice president; Homer Gerstenberger, treasurer; Ralph Terrel, secretary; George W. Bartz, general manager.

Turkish Facilities' Expansion To Double Next Year

EXPANSION of telephone facilities in Turkey will be doubled during the next fiscal year, which begins March 1, 1953, under the new government budget which is now being considered by the Turkish Parliament.

The 1953 budget for the postal and telecommunications operations and expansion, as submitted to the Parliament, totals 53,600,000 piastres as compared with the 89,500,000 piastres for all communications, including ports and railroads, highways, postoffice and telecommunications. The 1952 budget for postal and telecommunication operations amounted to 50,000,000 piastres. An allotment of 19,700,000 piastres for expansion of postal and telecommunications facilities, practically all in the telephone field, was contained in the 1953 budget, compared with 10,000,000 piastres for expansion in the 1952 PTT appropriation.

Rural Lines Selling To New Rural Tel. Co-op

THE ILLINOIS Commerce Commission has authorized three rural Adams county telephone companies to sell out to the Adams County Telephone Co-operative.

The commission authorized the sale of the three companies for a total of $15,900. The companies are the Urmaoga Telephone Co. (Ursa, Lima, Marcellino and Tioga); the Mendon Telephone Co. and the Wessels & Mann Telephone Company (Lorraine).

The three companies will continue to maintain service until a modern dial system is placed in operation. A spokesman for the co-operative said that construction on the new system is expected to start this spring and that the new service should be in operation within a year after construction starts.

At present the three rural companies serve 708 subscribers. The new system will provide modern, 24-hour service for 867 subscribers.

The co-operative has received approval for a $509,000 loan from the REA to be used for construction purposes. All engineering plans have been completed and the area coverage design has been approved by the field manager of the REA.

Directory Rate Increase Granted General Subsidiary

GENERAL Telephone System has announced, through its President, Donald C. Power, that General Telephone

Put the "B" on Your Problems

The Neale Model B is designed for one-man operation. It may be used with equal effectiveness for spinning new cable or maintenance spinning of existing cable. This machine is easy to transfer at pole . . . simply by removing the gate in the spinner head. Many telephone companies . . . large and small . . . have reported success in using this cable spinner to reduce outside plant costs and solve problems of new construction and maintenance.

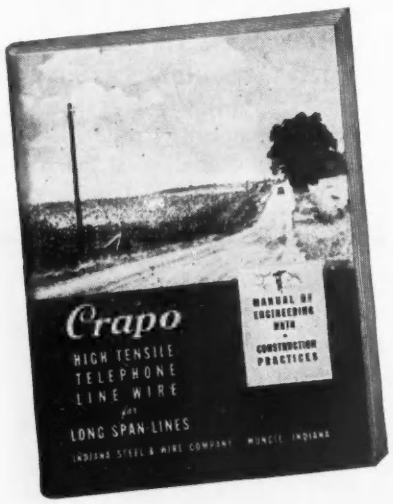
Contact Your Jobber

For Best Results Use Neale Wire

Available in 7 different types . . . all made to meet the toughest construction and corrosion problems.

THE WORLD IS SPINNING—TOO!
PHONE 2-7234-5
Cable Spinning Equipment Co.
3100 TOPEKA AVE. TOPEKA, KANSAS

How to Build Better Rural Lines at Lower Cost per Mile



Write for Your Copy of This Free Book!

You can save material and man-hours, and build better rural lines, when you use *Crapo* High-Tensile Telephone Line Wire.

Long-span, lower-cost rural construction is described in the illustrated Manual shown above. Designed to assist telephone men in furthering their plans to extend and improve rural service, this book includes stringing sag and tension data, helpful information on construction practices, metalicizing, transposition, pole guying, and related subjects.

This FREE book is yours for the asking. Write for Manual No. 203 today!

Crapo HIGH-TENSILE LOW-RESISTANCE LINE WIRE

Crapo HTL-85

Crapo HTL-135

Distributed by Leading Jobbers

•

INDIANA STEEL & WIRE COMPANY
Muncie, Indiana

Co. of Calif. has received authority from the Public Utilities Commission of California to increase its rates and charges applicable to the sale of telephone directory advertising in California, which will increase gross revenues by approximately $268,000.

The increased advertising rates will defray, in part, increased costs of directory publication and at the same time afford a reasonable contribution toward the support of telephone service generally.

General Telephone Co. of Calif., the system's largest operating telephone company, is also the largest Independent (non-Bell) telephone company in the United States having assets in excess of $135,000,000, with gross revenues exceeding $35,000,000 annually, and serving more than 500,000 telephones in 40 California cities.

General Telephone Company of California circulates more than 500,000 telephone directories annually to its subscribers. Classified advertising in these directories varies from 10 classified pages in the smaller exchanges to 520 classified pages at the larger ones.

Rural Co-op Activities

A monthly selection of activities announced by new and existing rural telephone co-operatives.

GRISWOLD, IA. — Another step in the approximately $200,000 improvement program of the Griswold Cooperative Telephone Co. has been taken with the awarding of a contract for automatic central office equipment.

Manager Miles Morgan reported that the contract went to the North Electric Co. on its bid of approximately $58,000.

The Cass County Company has received two REA loans.

SHAMBAUGH, IA. — Incorporation papers of the Page Telephone Cooperative have been filed. Incorporators are: Ermal Wilson, Shambaugh; Frank L. Pollock, Blanchard; Don C. Squier, Shambaugh; Leonard Vogel, Coin; Arthur Muller, Clarinda; R. A. Bowman, Clarinda; M. E. Montgomery, Clarinda; Byard L. Hook, Clarinda; and Ross Calhoon, Clarinda.

STEELEVILLE, ILL. — More than 2,400 farms in four Southern Illinois counties will get automatic telephone service, R. S. Holt, manager of the Egyptian Telephone Cooperative Association in Steeleville, announced.

The cooperative has received a loan of $860,000 from the Rural Electrification Administration.

Merle Fuhrhop of Steeleville has been named by Holt as his assistant manager in charge of telephone operations. He has been an employe of the Electric Co-op for several years.

The telephone co-op, a non-profit organization, has its headquarters in the Steeleville REA office. Directors of the Egyptian Electric Cooperative are serving as a board of incorporators until the new board is elected at the first annual meeting to be held in August.

GREAT BEND, KANS. — Two farmer-owned cooperative telephone companies, which have operated in rural Pawnee County, Kans., for nearly a half century, are in the process of going out of existence. The Pleasant Valley Co. and the Ash Valley Cooperative, are being taken over by the Southwestern Bell Telephone Co. In the Pleasant Valley district there are 126 subscribers on the new rural lines and 33 will be added later. The Ash Valley Cooperative has about 150 subscribers. Modernization of the companies will cost Southwestern Bell over $100,000, according to Elmer Watters, district manager from Great Bend, Kans.

CUNNINGHAM, KY. — A meeting of the *West Kentucky Rural Telephone Co-operative* was held at Cunningham recently to discuss plans for establishing telephone service there.

W. L. Parr, Mayfield, manager of the Rural Telephone Co-operative, discussed organization, procedure, and costs of the proposed telephone service at the meeting.

Cunningham is one of several areas in Graves, Calloway, Marshall and Carlisle Counties slated to share part

Full speed ahead!

. . . on our double-duty job

Here you see Western Electric installers putting the finishing touches on another new dial central office board. That's part of our regular job — helping to keep telephone service going and growing to meet the nation's needs.

Today, in addition to our telephone duties, we're also working directly for Uncle Sam — making radar fire control systems for guns, radar bombing systems for planes, electronic control and firing systems for guided missiles and special communications equipment for the Armed Forces. With us, it's full speed ahead on both jobs.

Western Electric

A UNIT OF THE BELL SYSTEM

CUT COSTS
WITH TIMESAVING
GREENLEE TOOLS

...push pipe underground with a
GREENLEE PIPE PUSHER

Here's the quick, simple way to install underground pipe. With the GREENLEE Pusher *one man* pushes pipe *under* streets, walks, railways, lawns, flooring. No tearing up of pavement...eliminates extensive ditching, back-filling, tamping, tunneling, repaving. Cuts job time to a fraction. Two models to fit your jobs exactly—hand or power-pump operated.

Other GREENLEE tools for telephone work . . .

Do the job faster, better with high quality GREENLEE Car Bits for pole work . . . Electricians' Auger Bits of special design for electrical installation work . . . Bell Hangers' Drills of the "Feeler Bit" type . . . Expansive Bits for boring ½" to 4" holes . . . and GREENLEE Angle-Screw Drivers which eliminate pre-boring for angle-screw installations.

MACHINERY & TOOLS
GREENLEE

Get facts on time saving Greenlee Tools. Write Greenlee Tool Company, 2002 Columbia Ave., Rockford, Illinois

of a $1,028,000 loan made by the Rural Telephone Administration.

The local co-operative obtained an option on the Cunningham telephone system approximately a year ago.

GLASGOW, KY. — Detailed planning for the rural telephone system which will serve a six-county area in south central Kentucky is "progressing satisfactorily" according to W. R. Bacon, manager for the South Central Rural Telephone Co-operative.

The telephone co-op will serve Barren, Hart, Metcalfe and Monroe counties as well as parts of Allen and Green counties.

PAINTSVILLE, KY. — Dreams of first-class rural telephone service in this area took a long step towards realization recently when the newly formed Foothills Rural Telephone Co-operative launched its membership drive.

The co-op plans to build telephone lines and exchanges to serve about 1,000 subscribers in Lawrence, Johnson, Magoffin and Floyd counties.

Applicants for service are being asked to pay $5.00 to be applied towards their membership fee in the cooperative, which will not exceed $45.00. 600 have signed up, according to J. Milton Kitchen of Blaine, Ky., the co-op president. Canvassers are working throughout the area to complete the job.

The project is estimated to cost approximately $431,000.

Other members of the board of directors in addition to Mr. Kitchen are: Fred Arrington, Louisa; James E. Jayne, Flat Gap; Mort Mullins, Keaton, and James W. Carpenter, Salyersville.

WEST LIBERTY, KY. — The Mountain Rural Telephone Cooperative Corp. of West Liberty opened bids recently for the installation of automatic exchange equipment in the five exchanges it will establish to provide telephone service to Morgan, Elliott and Wolfe counties, according to Woodrow W. Barber, manager.

Mr. Barber and W. E. Heagen, president of the co-op, said that, in addition to the five exchanges, plans and specifications have been completed for 327 miles of lines in the three counties and have been sent to Washington for REA approval.

The Mountain Rural Telephone Co-op, one of the first to be organized in Kentucky, was granted a loan of $455,000 by REA to construct a dial telephone system in Morgan, Elliott and Wolfe counties. The co-op subsequently purchased the *West Liberty Telephone Co.* and employed *Chanaberry Engineering Co.* to prepare the engineering plans for the three-county system. All preliminary work has been completed.

HOUSTON, MINN. — Officers and directors of the *Peoples Telephone Exchange Co.* of Houston announced that the company has granted to the *Fillmore County Telephone Cooperative* an option for a term of seven months from November 10, 1952, to purchase all of the real and personal property, franchises, and goodwill of the *Peoples* company for $30,000.

If the cooperative exercises the option, the $30,000 purchase price will be paid partly with preferred stock of the Fillmore County Telephone Cooperative of the par value of $35, partly with common stock of the Fillmore County Telephone Cooperative of the par value of $2, and the balance in cash.

SCOBEY, MONT. — The Northeastern Montana Telephone Cooperative Association, Scobey, Mont., is purchasing telephone lines located at Flaxville, Mont., Westby, Mont., Antelope, Mont., Froid, Mont., and Fortuna, N. D.

Geo. Johnson, president of the co-op, stated that counsel for the organization has been asked to request the Public Service Commission to allow the cooperative to charge the following rates per month: Single line business telephone, town, $8.00 per month; Two-party business telephone, town, $7.50 per month; four-party business telephone, town, $7.00 per month; Extensions will be $1.50 per month; single residential line, town, $6.25 a month; two-party residential line, town, $5.75 a month; four-party residential line, town, $4.25 a month; business line, rural, $7.00 a month; six-party residential line, rural, $5.25 a month with the possibility of having eight parties per line.

ARTESIA, N. M. — Approval of New Mexico's third rural telephone cooperative has been received by Paul Frost, manager of Central Valley Electric Cooperative.

Frost announced a $588,000 REA

24 hour REVENUE

FROM OUTSIDE TELEPHONE BOOTHS

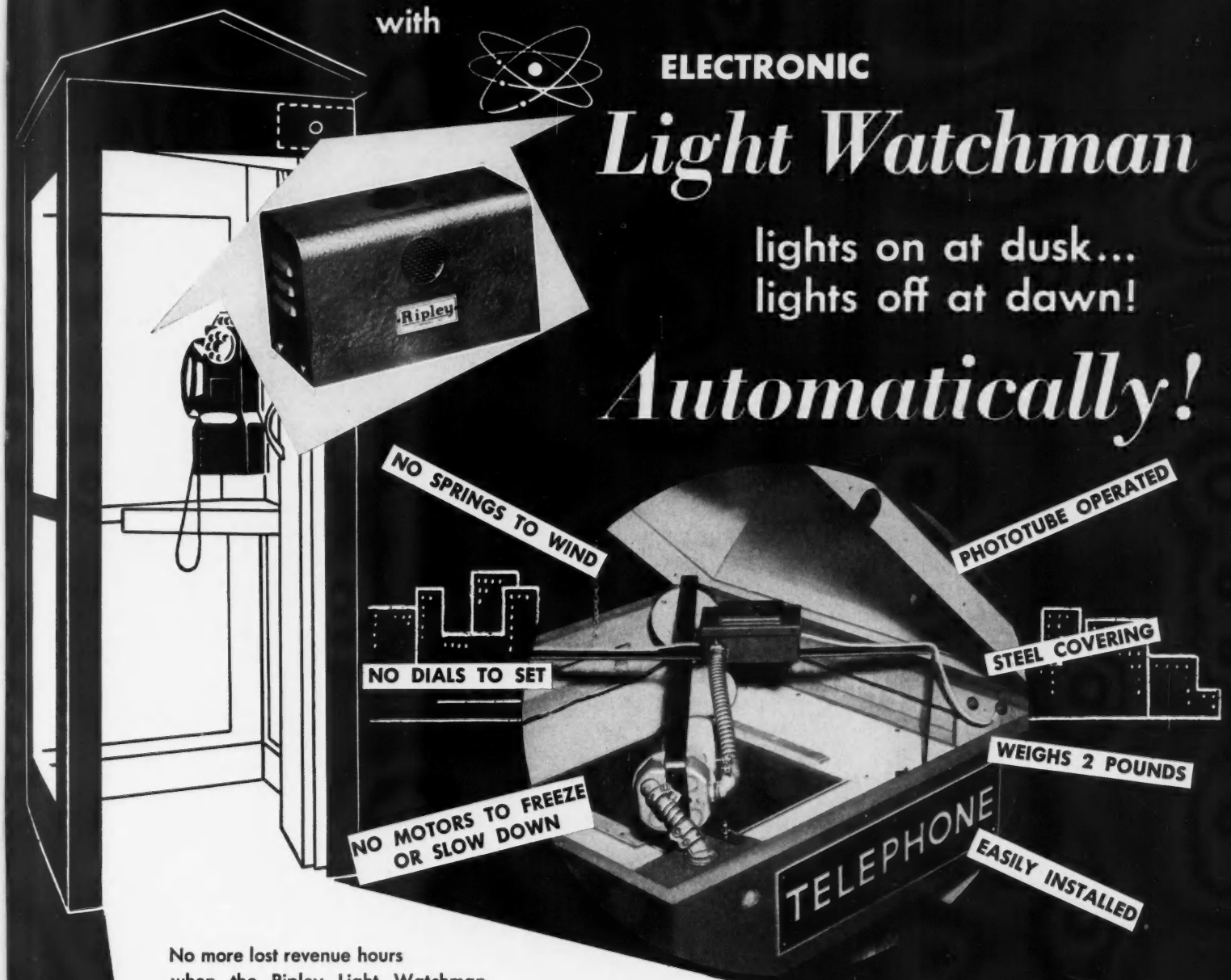
with

ELECTRONIC

Light Watchman

lights on at dusk...
lights off at dawn!

Automatically!



No more lost revenue hours when the Ripley Light Watchman automatically turns phone booth light on at dusk, off in the morning. Easily seen from a distance, a lighted booth encourages the timid, especially women, who hesitate to enter a dark booth at night.

Simply installed; thousands already in use throughout the country. The Electronic Night Watchman handles 300-watt load and is available for AC or AC-DC.

ELECTRONIC **Ripley** CONTROLS

Factory and Engineering Office: Telephone

loan to the Penasco Telephone Co-op, which for the time being, will be headquartered in Artesia.

Plans have indicated that the co-operative will install automatic service to subscribers in the Penasco and Hondo Valleys and parts of North Eddy County.

Among the first communities scheduled to receive the service are Cottonwood, Lakewood and Hope, as well as smaller communities in the Hondo Valley up to Ruidoso and the Penasco Valley to the Mayhill area.

BANNER ELK, N.C. — The State Rural Electrification Authority yesterday formally recognized a new telephone cooperative — the sixth formed in North Carolina under REA sponsorship.

The new telephone group, *Cherokee Telephone Membership Corporation* of Banner Elk, will serve rural areas of Avery County.

REA Chairman Gwyn B. Price said his board expects to receive a report on the members of the group, its proposed operating territory and its loan requirements at a later board meeting.

BELHAVEN, N. C. — Tri-County Telephone Members Corp., Belhaven, recently organized to provide telephone service to the territory in the general vicinity of Belhaven, in the counties of Beaufort and Washington. Incorporators are: T. R. Tyer, Jr., Carmer H. Wallace, both of Pinetown, and Robert B. Pearce, Ransomville, and others.

ELLENDALE, N. D. — Letting of two more large bids ushered in the second phase of actual construction work for the Dickey Rural Telephone Mutual Aid Corp. (DRTMAC). The co-op's board of directors selected bids for construction of 444 miles of new line and for central office equipment for the 15 former Independent exchanges now incorporated in the system.

The Martin Engineering Co., Pelican Rapids, Minn., was low bidder on the line construction, while the Automatic Electric Corp. of Chicago was low on the central office equipment.

C. C. Mitchell, manager of DRTMAC, said the first actual cash received by the co-op was the $81,600 released in July for purchase of 15 Independent exchanges. A second cash grant of $297,692 was received in October for setting up a permanent headquarters in Ellendale and for purchase of materials for construction, office and maintenance equipment.

Tid Bits

IN DALLAS, TEXAS, repairman Furnan Darby was checking some cable trouble. He found a paper-finned dart imbedded in an overhead cable. What really baffled him was that the dart had pierced the cable from the top.

"Directory Error"

IN SAN ANTONIO, TEX., Charles A. Holaday asked that his name be spelled three different ways in the telephone directory. Once correctly—"Holaday"—but in the other two listings it is spelled "Halliday" and "Holliday." Why? Because some of his former Navy buddies came to San Antonio once and were unable to get in touch with him because they didn't know how he spelled his name.

CONWAY, S. C. — Bayes Jordan of Carrollton, Ga., has been hired as manager for the *Horry Telephone Co-operative Inc.*

Ernest W. Johnson, director of the co-op, said Mr. Jordan will start work shortly with headquarters in Conway. There are 600 members in the co-op now and it is expected that 2,000 telephones will be connected. The principal exchange will be in Conway, with five others in the county.

BUFFALO, S. D. — E. G. Brown, Buffalo attorney, has been appointed RTA coordinator for the purpose of organizing a rural telephone system. Mr. Brown stated that the area to be covered will be bounded by the North Dakota line south to highway 212, east from Lemmon to Ludlow.

HIGHMORE, S. D. — An organizational meeting of the proposed *Sully-*

(Please turn to page 78)

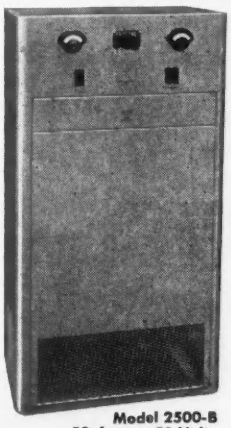
Construction M
With the Double Gu
and America's Le
gould planté . . .
the aristocrat of stationary batteries

Many Planté batteries are still in active fl
float service after twenty, thirty, even for
years! That's because Planté plates a
heavy, solid sheets of pure lead. In thes
batteries Gould has eliminated the primar
cause of self-discharge, capacity losses an
shortened battery life. Cut maintenance
charging and replacement costs to a mini
mum. Choose Planté.
Made by
GOULD-NATIONAL BATTERIES IN
STROMBERG Telephone CARLSON

orMaterials and Supplies . . .

bleGuarantee of Stromberg-Carlson
a"Leading Manufacturers . . .

for 3-phase operation . . . be safer and surer with **flotrol automatic battery charger**



Model 2500-B
50 Amps., 50 Volts

Except for the starting and battery disconnect contactors, the FLOTROL does not contain any moving parts—an assurance of higher efficiency, complete dependability and longer service life. All components are in one cabinet and no special foundations are needed, reducing installation to a minimum. DC voltage delivered is regulated within ± 1%. Complete overload protection is as automatic as charging itself.

WRITE for Bulletin 161—completely describing the FLOTROL system for 3-phase operation.

a product of actual field study

The Reliable B27 Protected Cable Terminal has resulted from basically sound engineering, supported by actual field experience. It places all connections within convenient reach of the lineman without necessity of removing fuses or reaching around the terminal—also a decided advantage in inspecting.

Detachable mounting bracket permits one-man installation. Ground connection is made directly to ground strip, reducing possibility of high resistance ground. Reliable Self-cleaning Sawtooth Discharge Blocks are standard—insuring dissipation of static discharges without danger of unnecessarily grounding the line.

RELIABLE
B27 CABLE TERMINAL

ANSONIA Ankoseal

the modern, all-plastic, lightweight telephone cable . . .

saves three ways—

1. Lower first cost
2. Lower installed cost
3. Lower maintenance cost

Available for aerial, duct and direct burial use. For complete information contact your nearest Stromberg-Carlson Field Office.

THE ANSONIA WIRE & CABLE COMPANY
Ansonia, Connecticut

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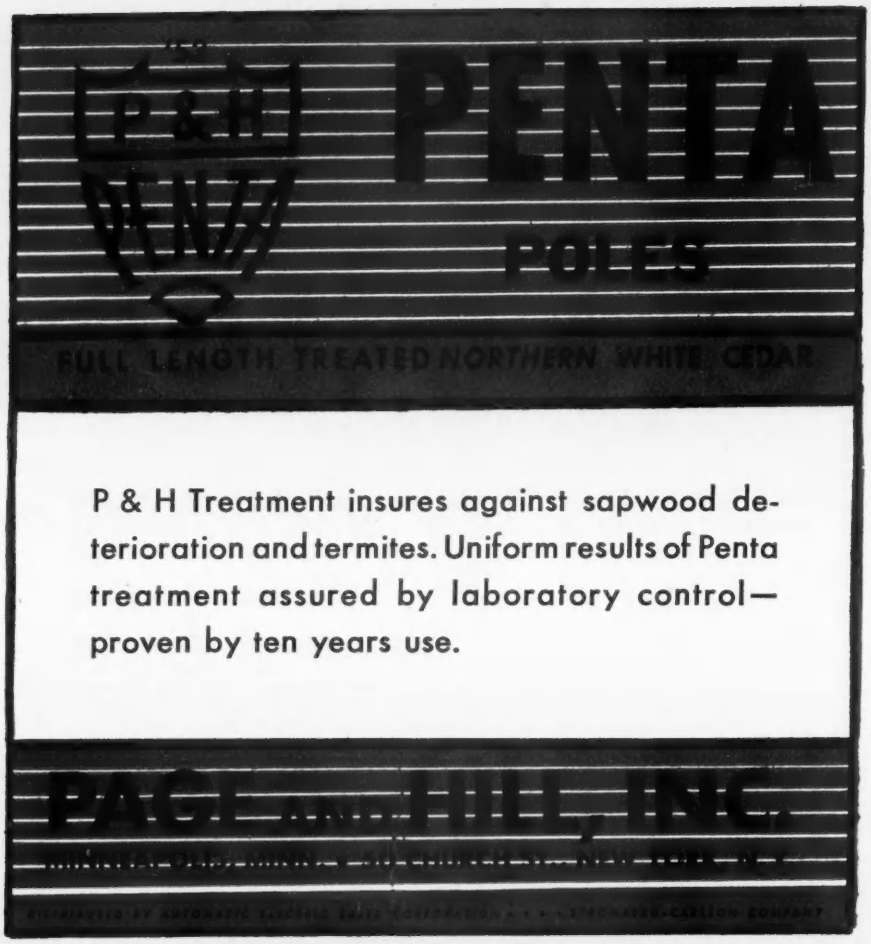

P & H
PENTA
POLES
FULL LENGTH TREATED NORTHERN WHITE CEDAR
P & H Treatment insures against sapwood deterioration and termites. Uniform results of Penta treatment assured by laboratory control—proven by ten years use.

Servicing the
INDEPENDENT
Telephone Industry

A
Complete Line of
Telephone Supplies

•

Lindsay Telephone Supply Co.

Telephone ENdicott 1-0110 7016 Euclid Avenue
CLEVELAND, OHIO

PERSONALIZED SERVICE

Buttes Telephone Cooperative was held at Highmore recently.

The proposed cooperative is being formed under the Federal Rural Telephone Administration and when completed will operate much in the same manner as the Rural Electrification Association.

Two Hyde County men are members of the newly organized temporary board. They are Wayne Wade, who was elected secretary, and Lawrence Stoley, board member. President of the Board is Glen Hughes of Onida. Other board members include: Joe Blasek of Ree Heights, Emil Martes of Wessington, Randall Mercer of Blunt and Harold Currier.

An estimated 1500 telephones would be served by the new company.

Plant Maintenance Pays Off

(Concluded from page 36)

cover is restored; (c) maintain clearance from trees; (d) maintain clearance from power circuits; (e) rusted strand should be reported and replaced; (f) when cable in rings is to be spun always check for ring-cuts and solder those needing it; and, (g) periodic check of taped openings — should be closed as soon as possible.

(5) POLE LINE: — (a) Periodically check poles for replacements; (b) consider use of wood preservatives to add to pole life; (c) select poles of adequate size and class; (d) guying should be checked for size, lead of guy, proper size, etc.; (e) care in determining length of spans; and, (f) always maintain clearance from power circuits.

(6) OPEN WIRE: — (a) Use of proper splicing material — compression type; (b) eliminate all hand splices; (c) always transpose circuits when constructing; (d) proper transpositions on existing wire; (e) check floaters, loose ties, broken insulators — these to be corrected as found; and, (f) use proper sag.

(7) BUILDINGS: — (a) Normal repair; (b) appearance; (c) telephone signs; and, (d) remember this is the home of the company and should be kept accordingly.

Remember — "The service can be no better than the condition of the plant over which the service is rendered." — THE END.

Washington Bureau Reports

(Continued from page 22)

Theater Television

WHAT IS developing into one of the most significant cases to be taken before the Federal Communications Commission in some time — the theater television proceeding — is moving forward slowly at the FCC, with indications that it will be some time before the hearings are concluded.

The petition of the Motion Picture Association of America and the National Exhibitors Theater Television Committee for an allocation of frequencies so that a separate theater television transmission service can be set up has important aspects to practically everyone in the communications business, including the telephone companies, the Western Union Telegraph Co., the safety and special radio services, and the national television networks.

Positions of the parties were outlined prior to the start of the hearings in summaries of testimony filed with the Commission.

The US Independent Telephone Association, which is participating in the case in opposition to the MPAA-NETTC application, declared in its summary that the Independents "offer to cooperate with the Bell System in providing television transmission service, including theater television service, in accordance with the principles currently prevailing for the coordination of long distance telephone message service, radio programs, leased wire, and other special services that are now provided on a national basis."

The summary added, "The assignment of radio frequencies (even if not in bands now assigned to common carriers) to other than telephone common carriers in order to provide theater television service, is considered wasteful in addition to establishing a precedent that may be embarrassing to the Commission in the future."

USITA witness will be C. H. McLean, chairman of the association's Radio Service Committee.

Keystone of the American Tele-

(Please turn to page 80)

ON GUARD AGAINST BLACKOUTS

RAYTHEON RECTICHARGERS®
(Battery Chargers)
HELP PROTECT UTILITY POWER LINES

The same dependable RectiChargeRs, so widely used throughout the Telephone Industry, help guard your community against power and light failure. Operating unattended in remote sub-stations, they charge the batteries which operate circuit breakers — help guard power lines against lightning surges, provide circuit protection during storms and other emergencies.

Power companies prefer Raytheon RectiChargeRs for the same reasons you do . . . because they are fully automatic — maintain constant voltage output over the complete load range — follow the load and compensate for wide input changes — never overcharge or undercharge — contain no tubes or moving parts to wear out — require routine inspection only once or twice a year.

RAYTHEON®
Excellence in Electronics

RAYTHEON
MANUFACTURING COMPANY
EQUIPMENT SALES DIVISION
DEPT. 6270-TE, WALTHAM 54, MASSACHUSETTS

DISTRICT OFFICES: BOSTON, NEW YORK, CLEVELAND, CHICAGO, NEW ORLEANS, LOS ANGELES (WILMINGTON), SAN FRANCISCO, SEATTLE
INTERNATIONAL DIVISION: 19 RECTOR ST., NEW YORK CITY

RAYTHEON PRODUCTS INCLUDE: RectiChargeR* battery chargers; RectiFilteR* battery eliminators; Voltage stabilizers (regulators); Transformers; Tubes and other electronic equipment.

*Reg. U. S. Pat. Off.

Specify Raytheon RectiChargeRs and RectiFilteRs for completely dependable Telephone service. Your supplier offers a complete line for all requirements. Ask him for details or write direct.

phone & Telegraph Co. summary of its case was that "the Bell System can provide facilities to meet the service needs of theater television as it has met the needs of broadcast television and of other communication services."

The Bell companies, it was added, are well qualified to provide theater TV service "because of their long communication experience, extensive broadband networks, trained organization, and research and development facilities."

Western Union said it believes it is in "an excellent position to undertake the expansion and/or augmentation of its common carrier facilities" for theater TV.

The telegraph company declared, "if the Commission should decide that theater television service is to be provided for on a common carrier basis, an arrangement would be made for long-term leasing of facilities to be provided by Western Union on a basis that would permit the financing of the system and amortization over a reasonably long period.

"If the Commission should decide that the frequencies are to be allocated outside the existing common carrier bands, the theater television interests probably could set up a limited common carrier to supply such service, and Western Union could enter into an agreement to build and operate the system for the limited common carrier. If the Commission should decide to allocate frequencies to theater television, a contractual relationship could be entered into under which Western Union would build for the use of the theater interests the beam system that it required.

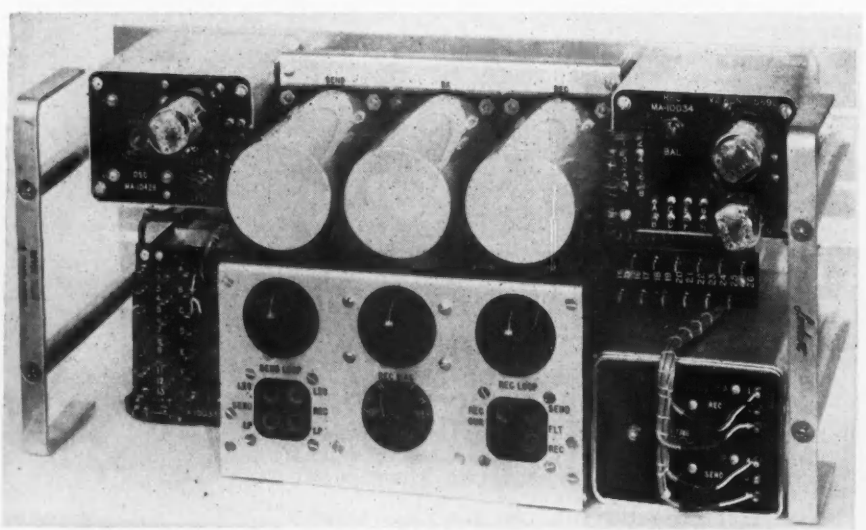
"Under such latter arrangements, Western Union facilities would be provided on the same system through some arrangement of sharing the costs by license of the right to operate Western Union equipment on the same towers."

Western Union also has asked the FCC to include in the theater television case a question of interconnection of common carriers' channels in the event that the FCC should decide it should be a common carrier service. The telegraph company's position is similar to that which it took when it sought an FCC order requiring the Bell System to interconnect its intercity TV channels with those of other Western Union, a petition rejected by the Commission.

Lenkurt Develops New Carrier Telegraph System

EITHER PHYSICAL or carrier derived voice circuits can be economically divided into a number of telegraph channels with the new Lenkurt 24C amplitude modulated carrier telegraph equipment. Up to 18 duplex telegraph channels can be derived from a single four-wire circuit or up to 9 duplex telegraph channels can be derived from a single two-wire circuit with this equipment. The derived channels can be used for teleprinter service, remote control, and other telegraphic indication. Frequency allocations and levels are compatible with other widely used carrier telegraph systems.

(Please turn to page 82)

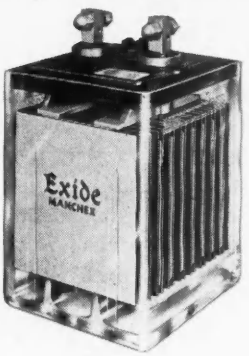


The channel terminal panel for Lenkurt's new Type 24C carrier telegraph equipment includes transmitter, receiver and relays. Jacks and controls for adjusting bias and loop current are easily accessible on the front of the panel. A snap-on dust cover is provided for the panel.

Construction M

With the Double Gu
and America's Le

Exide-Manchex
telephone batteries



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positive operation

For Central Office
and Private Branch
Exchange Equipment

This is proven daily in exchanges of every s
. . . for over 60 years Exide Batteries have be
serving the Telephone Industry . . . the Ma
chester positive plate with its exclusive but
type construction provides exceptionally lo
life . . . latest developments on molded gl
jars permit compact space saving installati
. . . heavy terminal posts with copper inse
provide extra conductivity for sustained w
age at high discharge rates . . . microporo
rubber along with slotted plastic separato
are impervious to chemical and electrical
actions . . . plastic spacers assure plate ali
ment . . . for assured dependability, long l
and low-cost maintenance use Exide Manch

The Electric Storage Battery C
Philadelphia, Pa.

1888 . . . Dependable Batteries
for 65 Years . . . 19

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS • SOUND EQU

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

better than ever!

DIAMOND C POLES

For durability, use DIAMOND C

because they're made in a new and modern plant

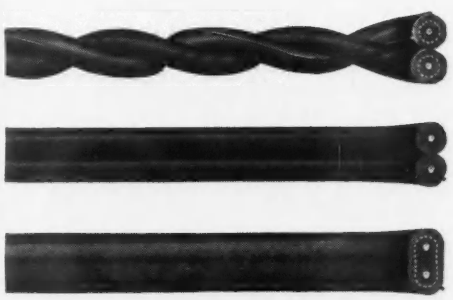
Something new has been added!—at Pineville, Louisiana—a modern, enlarged creosoting plant offering faster delivery and better-than-ever quality in telephone poles of this well-known, well-liked brand.

Diamond C poles are made of Southern pine, carefully selected from live growing trees and graded according to physical properties desired. Each pole is pressure-treated with 8 lbs. (or more if you wish!) of grade No. 1 Creosote Oil, in accordance with AWPA specifications.

Reduce loss in revenue due to pole failure. Buy Diamond C from S-C!

PHELPS DODGE TELEPHONE DROP WIRE

ALL TYPES—FOR HEAVY-DUTY SERVICE



✔ **Copperweld conductors** for strength

✔ **Habirshaw insulation** for reliability

✔ **Neoprene sheath** for high resistance to abrasion and weathering

PHELPS DODGE COPPER PRODUCTS

CORPORATION

cook type 7

high-potential lightning arrester

Outdoor pole type arrester provides lightning protection and atmospheric static drain for five pairs of open-wire circuits, or for drop wires and cables leading to unprotected terminals.

Equipped with:

1. Single piece molded Bakelite insulation and fanning strip for strength and high resistance. Fanning strip is closed with a thin film of Bakelite until drops are run.
2. Non-corrosive metal hood, Everdur studs and galvanized mounting bracket for long service life.
3. Phosphor-bronze spring clips to accommodate Cook Tru-Gap non-grounding lightning dischargers.

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EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPH

(Continued from page 80)

sists of a number of channel terminal panels and common equipment as required. The transmitter, receiver and relays for each channel are included on the basic channel terminal panel which occupies 8-3/4 inches of vertical mounting space on one side of a standard 19-inch equipment rack. All channel terminal panels are identical with the exception of the sending and receiving filters and the carrier frequency oscillators.

Convenient access is provided for all controls and terminations to simplify installations, adjustment and maintenance, and a selector switch on the panel provides four loop options. A wide variety of standard terminal assemblies are available.

Complete information about the new Type 24C carrier telegraph system can be obtained from the Lenkurt Electric Company, 11051 E. County Road, San Carlos, Calif.

Tel-E-Lect Announces New Combination Bodies

TEL-E-LECT PRODUCTS, Inc., Minneapolis 16, Minn., is now offering bodies for the combination service truck, furnished as a complete package. This is in addition to its established line of derricks, augers and winch drive transmissions.

According to Ray L. Kennedy, sales manager, these "combination bodies" for ¾ and 1-ton trucks are designed to save time and money for the utility or contractor on rural pole line jobs. He points out that there's always work for the combination truck because they require only two men to operate — they dig holes and set poles up to 40 feet in length, handle regular service work, reach jobs quickly and overcome the need for sending out large trucks and crews for small jobs.

The "Stowaway Derrick" is attached to the truck and can be raised to working position in 30 seconds, ready for the lifting or pole setting job. The power take-off does the lifting. The digger with interchangeable augers (8″ to 20″) is attached in two minutes with a single drive and safety shear bolt. On the average, the entire digging and pole setting job takes less than 15 minutes.

The complete "Model D combination body" units that Tel-E-Lect furnishes are in sizes for ¾ or 1-ton trucks. They include an electrically welded body of 16-gauge steel with 18-gauge weather-tight doors and keyed locks. The derrick, winch and digger drives are integral parts. The built-in winch drive transmission gives rapid forward, neutral and reverse control to the winch. It eliminates the need of shifting the power take-off or use of truck clutch. With digger control gear box and chain drives, it is mounted to the body in the correct position for the make and model truck.

The unit is delivered set-up so that all that remains for the local mechanic is the mounting of the body, power take-off and cab controls to the chassis of any make of truck. Special compartment bins and shelves are provided as optional items.

Decoursin Appointed FWD Sales Manager

G. F. DECOURSIN has been appointed to the position of general sales manager of The Four Wheel Drive Auto Co., Clintonville, Wis.

DeCoursin joined FWD in 1936. In 1945 he was made manager of

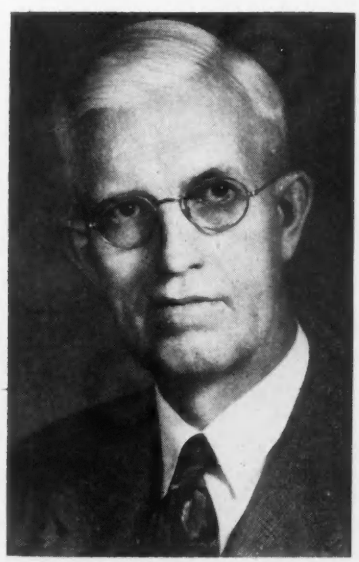
The annual sales conference of the L. M. Berry & Company's Territory, Division and General Office Executive was held at the Biltmore Hotel in Dayton on Dec. 8, 9, and 10, 1952. A program for increasing directory revenue, while at the same time maintaining better public relations with all telephone company subscribers, was discussed. Pictured from left to right standing: J. J. Mullin, B. E. Hale, L. E. Getzler, W. J. McGirl, B. D. Addington, J. M. Bayley, J. P. White, I. J. Klass, John W. Berry, Loren M. Berry and W. A. Steuer. Pictured from left to right seated: Phil Engle, E. F. Tinnerman, C. R. Ritschard, N. E. Robinson, H. E. Evans, W. C. Welch, S. H. Rainey, J. Z. Wilson, J. E. Whalen, J. C. Grimes, F. L. Hawker, H. F. Scott, Ralph Maner, W. M. Maier, Jr., J. W. Craig, Jr., R. W. Brundige and W. L. Wolcott.

the Standards Department, but his interests also included sales and business problems. He was promoted to the sales department early in 1949 and in 1950 became Field Sales manager in charge of all the sales activities of FWD dealers and salesmen. During the past four years he has spent most of his time on the road, working with dealers and salesmen, and has been in practically every corner of the United States.

Harvey March Retires From Southwestern Bell

HARVEY F. MARCH, division plant engineer for the Southwestern Bell Telephone Co., who retired January 31, 1953, was honored recently at a dinner in Kansas City, Mo.

Mr. March had worked for telephone companies 42 years. He began in 1910 as a draftsman with the old Missouri & Kansas Telephone Co. In 1912 March was transferred to St. Joseph as an engineer. He worked on consolidations of Independent and



HARVEY F. MARCH, division plant engineer of the Southwestern Bell Telephone Co., retired Jan. 31. He plans to do consulting work in the telephone field.

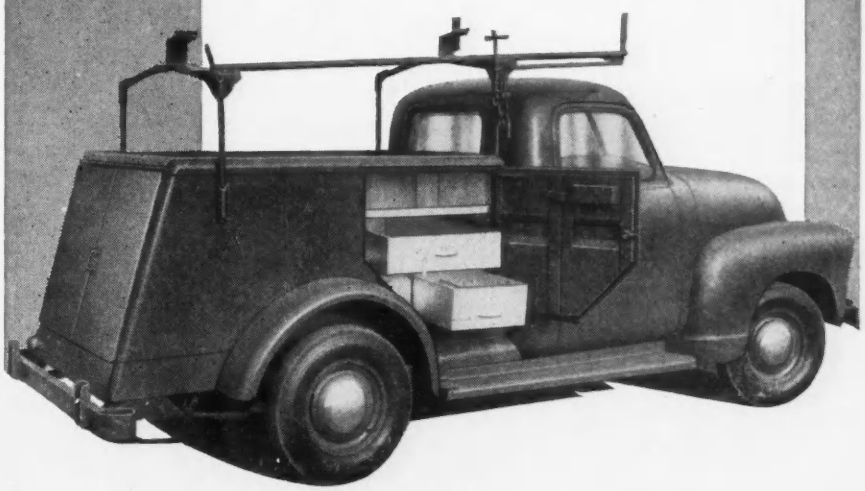
Southwestern Bell properties in Topeka, Leavenworth, Atchison, St. Joseph and Kansas City. Five years after going to St. Joseph, Mr. March moved again, becoming an employee of the Central Union Telephone Co. in Akron, O. He returned to Kansas City in 1918 and remained there until 1926, when he was transferred to Topeka.

Mr. March has been stationed in

(Please turn to page 86)

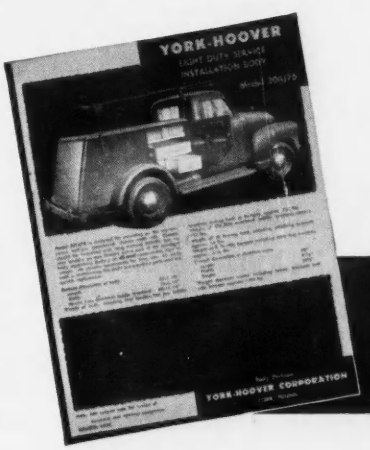
YORK-HOOVER
MODEL 201U76

new LIGHT DUTY SERVICE INSTALLATION BODY



WHAT THE MODEL 201U76 BODY WILL DO FOR YOU...

Light duty service work must be fast and efficient. Materials and tools must be readily accessible. That is why the new York-Hoover Model 201U76 Body was designed . . . especially for **your** light duty service work . . . for **your** convenience . . . for **quicker, better service.** Efficient design and sturdy construction, combine to provide this **faster, better service** for you . . . at **less** cost.

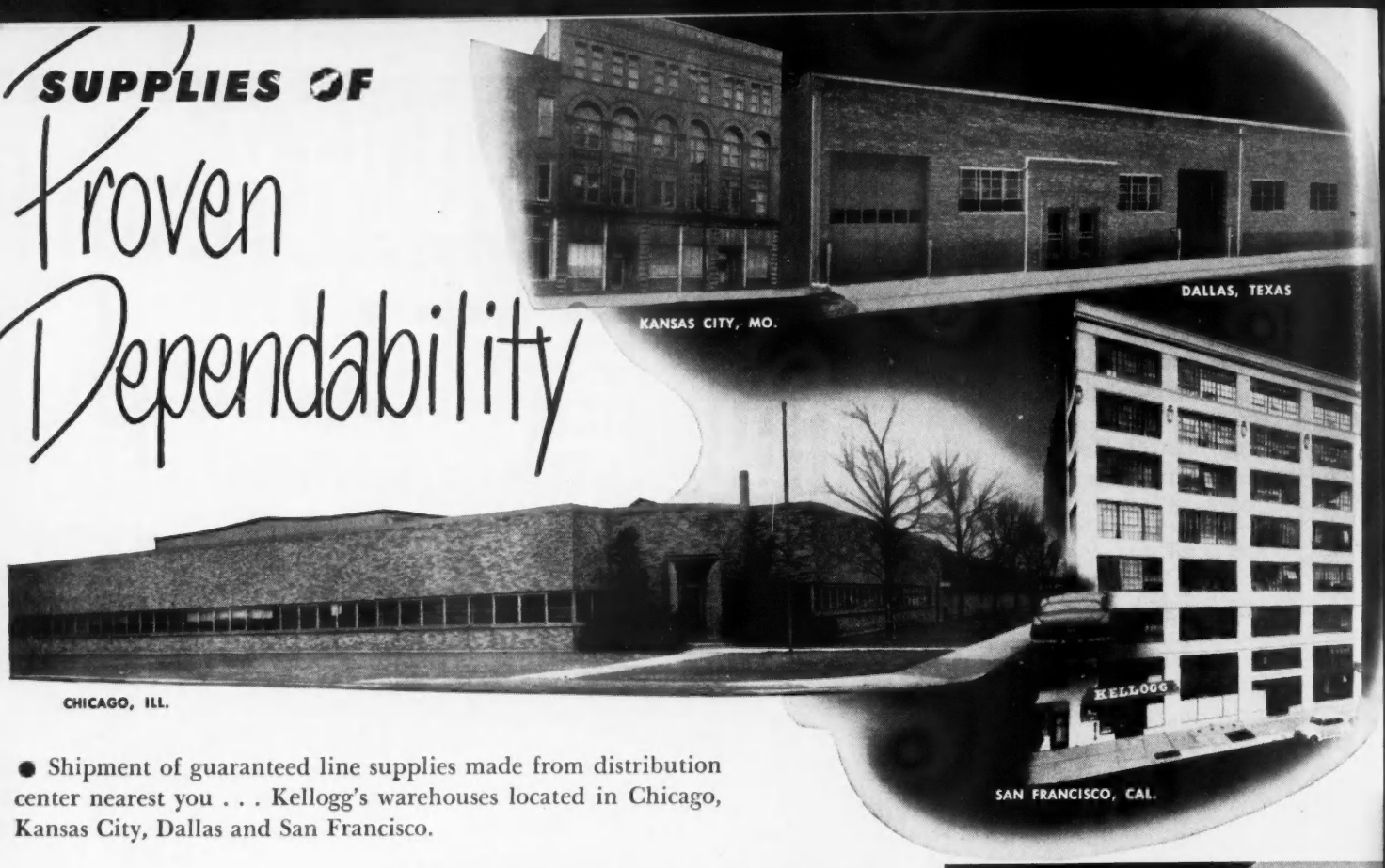


Write us today regarding your light duty service problems. We will be glad to provide you with all the details, including earliest possible delivery dates of the Model 201U76.

Bulletin No. 930 contains all the facts about our Model 201U76 Body. Write for your copy today!

York-Hoover Corporation
YORK, PENNSYLVANIA
Body Division

SUPPLIES OF Proven Dependability



● Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas and San Francisco.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1952 Kellogg Co-operative Campaign.

American Creosote Works, Inc.

American Structural Products Co.

Ansonia Wire & Cable Company

Bishop Manufacturing Co.

Boston Woven Hose and Rubber Company

Churchill Cabinet Company

Continental Cross-Arm Co.

Copperweld Steel Company

Diamond Wire & Cable Company

The Electric Storage Battery Co.

General Insulated Wire Works, Inc.

Gould-National Battery, Inc.

W. A. Hammond Drierite Company

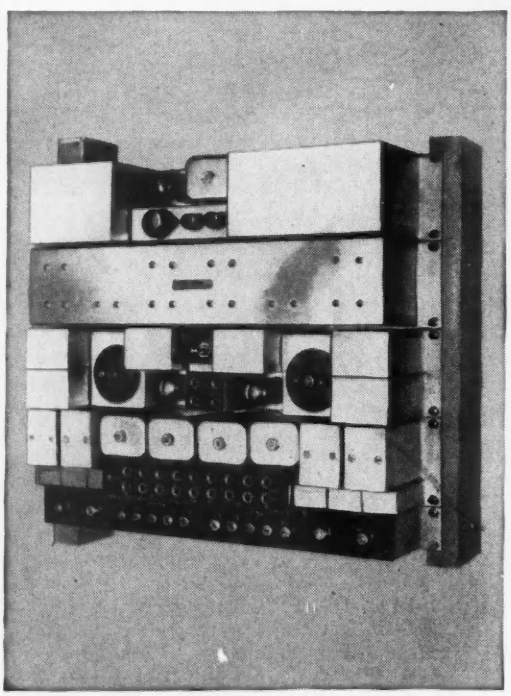
Indiana Steel & Wire Company

Kester Solder Company

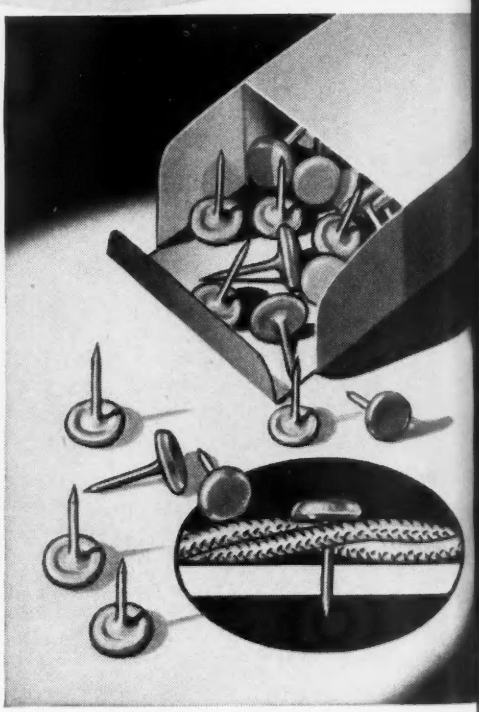
Lorain Products Corporation

T. J. Moss Tie Company

National Carbon Company
A Division of Union Carbide and Carbon Corporation



For Strong, Clear Toll Transmission and a quiet circuit, use the Kellogg Repeater. Sharp cut-off aids in obtaining maximum usable gain. Important features are "unit" construction and ease of adjustment. KELLOGG SWITCHBOARD & SUPPLY CO.



Designed for Fastening Wire. Rhodes Inside Wiring Nails are made with special brads for easy driving. Fibre heads insure good insulating qualities—will not damage wire insulation. Nails colored to match insulation. M. M. RHODES & SONS CO.

Newman Manufacturing Company

National Telephone Supply Co.

Raytheon Manufacturing Co.

Ray-O-Vac Company

Reliable Electric Company

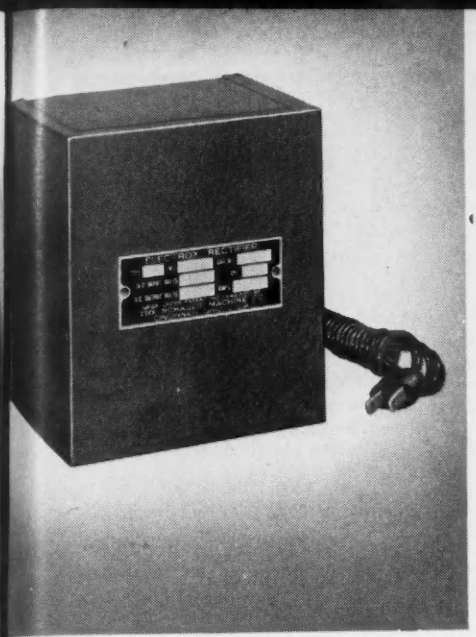
M. M. Rhodes & Sons Company

Schauer Manufacturing Corp.

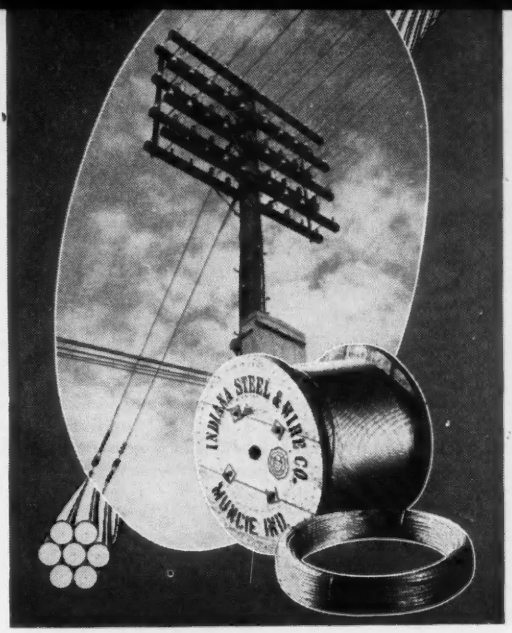
Taca Cable Stripper Manufacturing Co.

Vulcan Electric Company

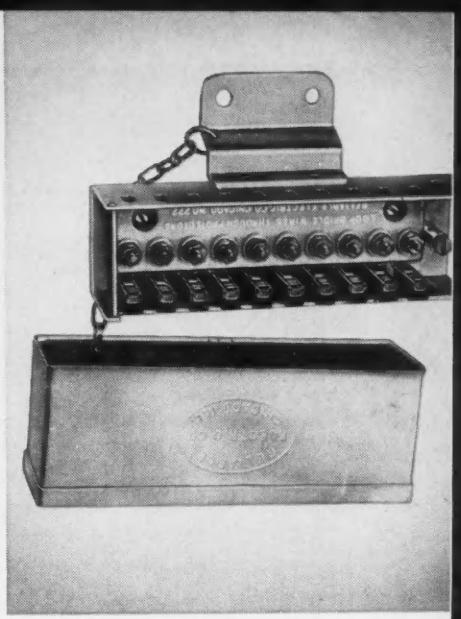
Weller Electric Corp.



nger Storage Battery Life is assured by us- g the RB Electrox Automatic Charger—it aintains charging rate in proportion to ain on batteries. Humless operation per- its charging while telephone system is in e. SCHAUER MACHINE CORP.



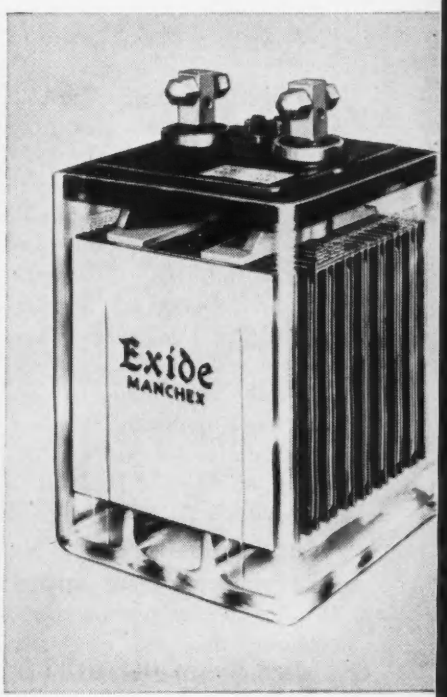
The Time-Tested Steel Stand. A ductile, adherent zinc coating applied by the famous Crapo Galvanizing Process, provides lasting protection against corrosion in INDIANA STEEL & WIRE CO. Crapo Steel Strand. Minimum maintenance expenses.



For Dependable Protection use RELIAB ELECTRIC Co.'s No. 222 Outdoor Arres with its self-cleaning sawtooth dischar blocks. Used with unprotected cable terr nal where open or drop wire leads are t long to be left unprotected.

Sealed Against Trouble! Communication equipment manufacturers demand Kester Plastic Resin-Core Solder, because it makes a perfect seal. Prevents high-resistance joints and intermittent open-and-closed circuits. KESTER SOLDER COMPANY.

Ringing Maching for Large or Small Telephone Systems! The compact TELERING rings thru where other frequency converters fail—ringing surrent supplied directly from commercial power lines. Self-starting, quiet ringing. Made by TELKOR, Inc.



Time Proven—for 60 years Exide Batte have been serving telephony! The Manch ter positive plate with its button type c struction provides long life . . use Ex Manchex for all your battery requireme ELECTRIC STORAGE BATTERY CO.

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The Twenty-Fifth Annual Sales Conference of the James R. Kearney Company, which manufactures equipment for line maintenance and construction, was held during the week of January 5th at the company's St. Louis, Mo., plant. Sales and engineering representatives of the company were called in from all parts of the United States, Canada and Mexico to attend the 5-day meeting. The above photograph shows part of the sales organization in attendance at the conference.

Kansas City since returning there in 1928. He supervised the planning of plant changes in the conversion from manual to dial service in Greater Kansas City. After retiring, Mr. March plans to do consulting engineering in the telephone field.

Leich Appoints New Ohio Representative

ROY W. SIEMUND, president of Leich Sales Corp., has announced the appointment of William G. Delaney as the new Leich representative in Ohio.

For three years Mr. Delaney sold telephone and intercommunicating equipment in the Middle West. In this capacity he became thoroughly acquainted with the operation and problems of the Independent telephone industry.

Mr. Delaney worked for the Geo. A. Fuller Construction Co. for five years. He served in World War II with the Third Army in Europe where he was a Technical Sergeant.

A native Chicagoan, Mr. Delaney is an alumnus of De Paul University. He will reside in Canton, Ohio.

Inet, Inc. Develops New Precision Power Supply

A NEW HIGH power direct current source, designed especially for the exacting requirements of digital and analogue computers, business machines and other complex electronic devices, has recently been developed by Inet, Inc., Los Angeles, Calif.

Known as the "Precision Power Supply," the magnetic amplifier-selenium rectifier power supply has been developed in order to simplify design and increase efficiency and reliability of equipment requiring very closely-regulated direct current.

Inet engineers claim that extensive tests demonstrate the unit's exceptional performance. It provides dynamic regulation of better than 0.2% with wide load and alternating current line changes. Seady rate regulation proved to be less than 0.15% from no load to full load, with plus or minus 10% AC line voltage. R.M.S. ripple can be filtered as low as 0.01%; with 0.5% as standard.

The Precision Power Supply is said to require about half the space of many types of equipment with comparable performance, and is housed in a single compact cabinet, or can be built with dimensions to customer's specifications.

The unit is designed for trouble-free heavy-duty service with no moving parts or electronic power tubes. The selenium rectifier-magnetic amplifier design eliminates thyratrons or ignitrons. Thus the equipment is designed to require the minimum of maintenance and parts replacement. Because of its high efficiency, approximately 75%, the unit has sufficiently cool operation to reduce refrigeration requirements in office-installed computers.

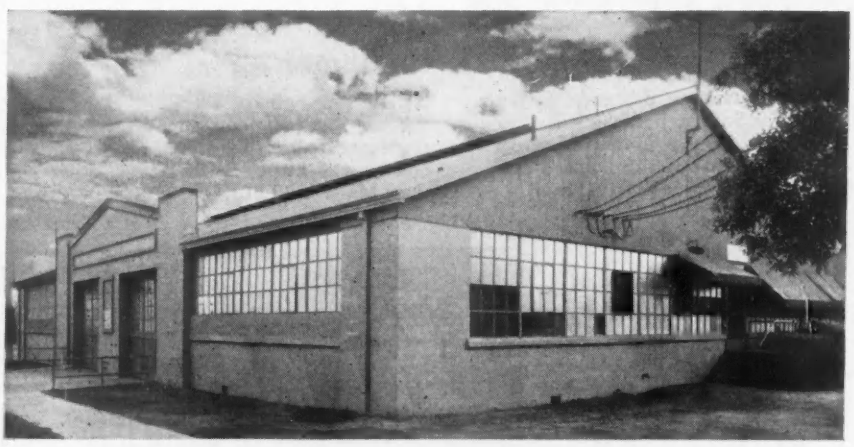
The new Precision Power Supply provides a degree of close regulation of high current D.C. power, to an extent hitherto regarded as impossible, claims I. B. Serge, Inet research chief, who supervised the development of the unit. Serge pointed out that a computer is activated by "spikes" — extremely rapid jumps or drops in voltage — and it therefore cannot function properly if the power supply creates artificial "spikes" because of changes in the load or in the A.C. line. The instantaneous dynamic regulation of the new Precision Power Supply eliminates bulky and inefficient compensatory elements which have previously been required in computers and business machines, he said.

Standard ratings of the Inet Precision Power Supply range from six to 500 volts D.C., and from five to 200 amperes. The equipment also can be built with other ratings to suit customer's specifications.

Leich Opens West Coast Branch in Los Angeles

R. W. SIEMUND, president of Leich Sales Corp., announces the opening of Leich's new branch office and warehouse in Los Angeles, Calif. This new office is located at 2611 Sawtelle Blvd. in West Los Angeles and will be the headquarters for Leich's sales operations in the West Coast area.

The warehouse will stock a complete line of telephone supplies and



New Leich warehouse and office in Los Angeles.

Kenneth J. Johnson is in charge of Leich's new West Coast branch.

construction materials, as well as telephones and associated equipment.

In charge of this office will be Kenneth J. Johnson who formerly represented Leich in the state of Iowa and who has also sold telephone equipment in the states of Nebraska and Kansas. Mr. Johnson will be assisted in this office by R. J. Rantnam.

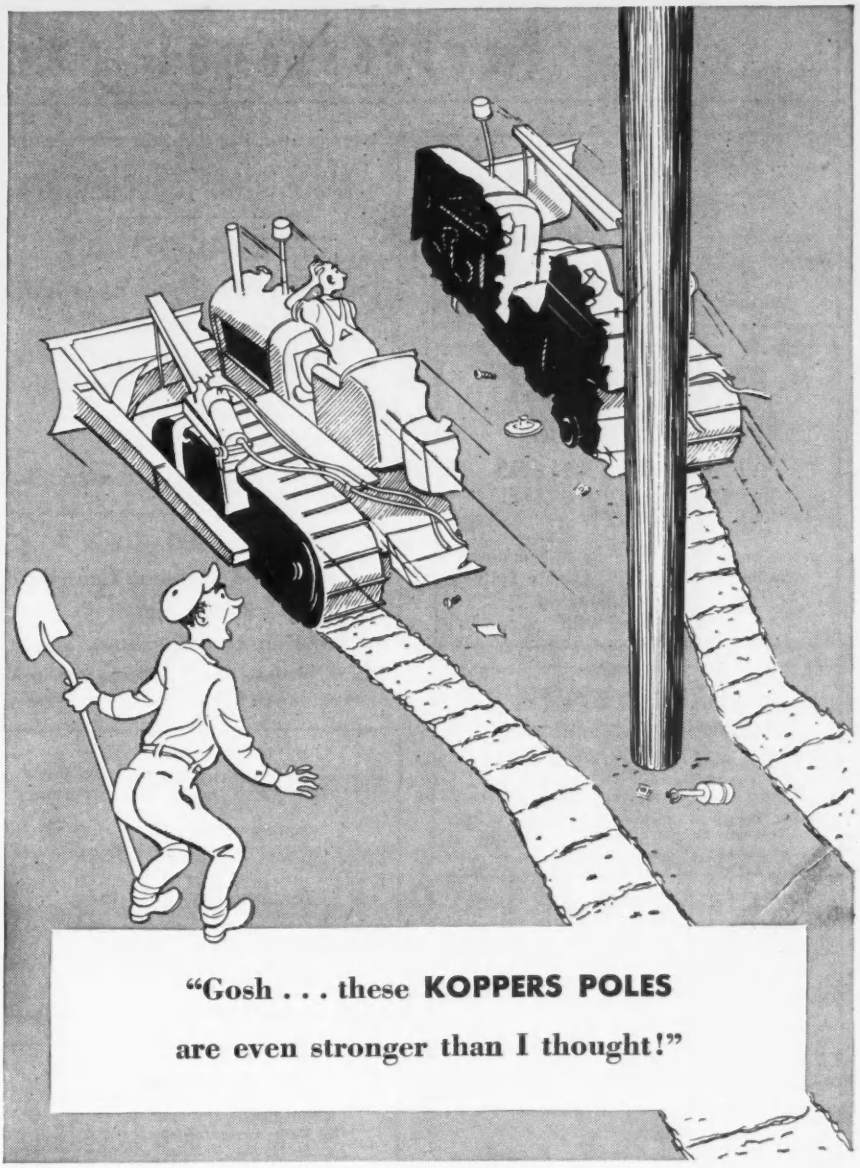
According to Mr. Siemund, this is the first in a series of expansion moves which should enable Leich to improve their service to the Independent telephone industry in the areas far removed from the Chicago headquarters.

Stromberg-Carlson Holds Annual Sales Conference

GENERAL MANAGER A. F. Gibson, of Stromberg-Carlson's telephone division, opened the annual telephone sales conference at the Seneca Hotel, Rochester, N. Y., on January 14, with a general summary of the company's results during 1952, and prospects for 1953, striking an optimistic note for both years. One session featured the use of television for audience observation of an actual sales presentation to a bona fide customer. Stromberg-Carlson's telephone sales manager, T. C. Thompson, stated that event marked two "firsts" in sales techniques — the first time television has been so used in a sales demonstration and the first time an attempt at a real sale has been made as a key demonstration before an entire sales staff.

The set-up for the demonstration

(Please turn to page 89)



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required the use of two television cameras, directed by George Driscoll of Stromberg-Carlson's Station WHAM-TV, and two of the company's 21-inch panoramic vision television receivers. John Cornelius and Joseph Ottalagana represented Strom-

A. F. GIBSON, gen. mgr. of Stromberg-Carlson's Tel. Div'n.

ber-Carlson in making the sales presentation to general manager S. Fred Nixon and plant superintendent George Dinsbier, of the Chautaqua & Erie Telephone Corp., Westfield, N. Y.

While this was being done in one room, with the two TV cameras picking up all the action and a microphone getting the conversation, the audience of salesmen and sales engineers were gathered in a second room, listening and watching each move as salesmen Cornelius and Ottalagana explained the features of the equipment and reasons why the Chautauque & Erie Telephone Corp. should buy an XY switchboard and allied equipment for its telephone exchange. In this second room also was sales manager Thompson, to conduct a running commentary on the progress of the sale, to emphasize important features, call attention to typical customer reactions, and to remind his audience of any possible omissions in the presentation.

This use of "closed-circuit" television permits one group to observe closely all activities, conversation, and reactions of a second group without the embarrassment of actual physical presence; Mr. Thompson says it

(Please turn to page 94)

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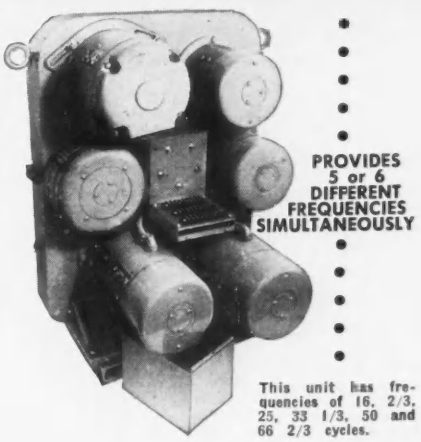

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For complete information on the products and services described in this department send in the coupon which appears on the opposite page. If you do not see a listing of the products and services that you are interested in, write BUYER'S GUIDE, 7720 N. Sheridan Road, Chicago 26, Ill. The information will be furnished quickly and without charge to telephone industry members.

ADVERTISING, Directories — *General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 185 N. Wabash, Chicago, Ill.*—[ADV. 1]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18. Ill.*—[ADV. 3]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 4]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 5]

CABLE, All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard. — *The Ansonia Electrical Co., Ansonia, Conn.*—[ADV. 6]

CORDS, Switchboard, Instrument and Operators —*Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 7]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 8]

ELECTRIC HOT WATER HEATERS. *Thermostatically controlled for any hot water heater, Vulcan Electric Co., Danvers 17, Mass.*—[ADV. 9]

FURNACES — For quickly and economically melting lead and paraffin — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 10]

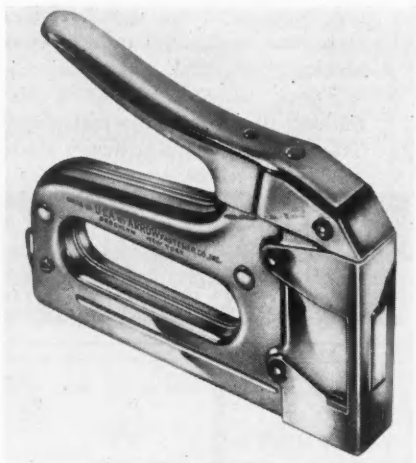
INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 11]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.*—[ADV. 12]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 13]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 14]

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P.O. Box 23, Pineville, La.*—[ADV. 15]



ARROW GUN TACKER: — Arrow Fastener Company, Inc., announces the T-50 Gun Tacker that shoots patented wedge-pointed high gauge carbon steel wire staples, up to 9/16" leg length.

The T-50 works on the principle of double leverage for smooth-action and power. It is specially designed to fit the contour of the hand for comfortable use and the 1-1/4 movement at extreme point with total spread of 2-1/16" affords user fast, easy tacking.

The T-50 Gun Tacker has a patented non-clogging mechanism that prevents jamming or clogging of staples. This precision locked mechanism permits only one staple at a time to be ejected from the staple track. An easy-to-get-at mechanism permits easy dismantling of working parts to remove dirt, dust, or grit for smooth efficient operation. — For complete data Check New Product 483.

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV. 16]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 17]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 18]

REBUILT TELEPHONE & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.*—[ADV. 19]

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WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 21]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 22]

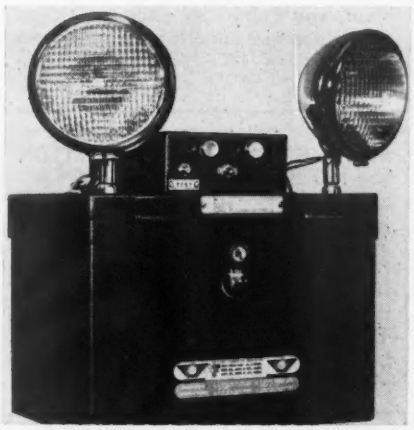
WIRE, Telephone, *for all inside and outside uses* — *Whitney Blake Co., New Haven, Conn.*—[ADV. 23]

MAGNETIC IMPULSE COUNTER: The Kellogg Magnetic Impulse Counter is an electromagnetic impulse-counting and storing device which may be described as a specialized single core, dual-winding, plural-armature relay. Actuated by electrical impulses, it performs the counting and marking function of a chain of 10 to 20 relays, or of a 2-magnet 10-point stepping switch, but at a lower cost and with a considerable saving of space while providing excellent operating characteristics and reliability.

Ten individual armatures are provided in the counter, each controlling a make set and a break set of contacts. The armatures are operated sequentially in response to impulses of the digit series being recorded. Armatures once actuated are held in position by residual magnetism, wherefore, no holding current is required. Release of the armatures is accomplished by energizing a second winding which acts to neutralize the residual magnetism in the mildly hard core.

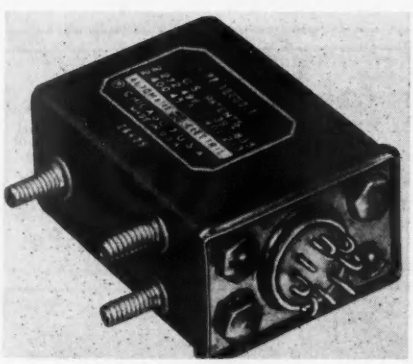
The counting sequence is controlled electromagnetically through an auxiliary restraining pole member for preventing response of any armature after the first until it has been preliminarily advanced, together with a simple armature inter-linkage which causes the next succeeding armature to advance preliminarily at the end of the instant operating impulse.

Features include: (1) the long life normal to relay apparatus, (2) space economy — one counter occupies the space of only two telephone type relays, (3) ability to operate over the same wide range of pulse ratio and frequency as a chain of well-designed counting relays. For further information and specification, check New Product 484.



EMERGENCY LIGHT:—In case of power failure this unit will provide maximum protection and sufficient illumination to carry on operations for many hours. Without touching a switch, light instantly illuminates the room if regular power fails.

The unit is powered by a storage battery built into the portable set. A trickle charger automatically maintains the charge of the battery. A built-in hydrometer indicates the state of the battery at a glance. Check New Product 485.



RELAYS: Bantam-sized Class "S" relays manufactured by Automatic Electric are now available in a new small hermetically-sealed enclosure. The entire unit measures 2-1/32 x 31/32 x 1-1/2 and weighs only 1-7/8 ounces. Mounting studs may be arranged on base or narrow side of housing.

This miniature relay was designed for minimum inductance and maximum make-and-break speeds. It is temper-proof and atmosphere-protected and meets or betters all provisions of MIL-R 6106. This relay in its new enclosure is recommended by the manufacturer for applications wherever extremes of shock, temperature and vibration require exceptional performance . For complete information, check New Product 486.

SOLDERING IRON: — Wall Manufacturing Co., Grove City, Pa., has introduced a new instant heat gun type of soldering iron without the use of a transformer which the company claims makes soldering more accurate, more economical and more efficient.

The Wall Trig-R-Heat Soldering Iron has a light, plastic gun-grip which makes it easy to handle and aim. Heat is quick — reaching working temperature within a few seconds after the trigger control is touched. Heat is accurate, too — an exclusive "Thermostatic Brain" prevents iron from getting too cool for efficient soldering, or too hot for tip safety. As a result tip lasts much longer, and gives more efficient service. This thermostatic action is guaranteed for the life of the iron, or Wall will pay the customer double his money back.

A switch-controlled spotlight makes interior soldering easier, and is invaluable for repair men. Wall Trig-R-Heat soldering irons cause no radionic interference when in use. The new iron operates on ordinary house current, 115-120 volts, AC or DC. Wattage starts at approximately 400 watts, and idles at about 100 watts. Wall Trig-R-Heat irons retail at hardware stores and electrical supply houses for about $11.95 — For free catalog sheets, Check New Product 487.

HUMIDIFIER: — The Abbeon Supply Co., announces production of the New Sherwood Table Model Humidifier for use in offices, homes and for light industrial purposes.

The new Humidifier is of attractive appearance. The container and dome are made of heavy gauge aluminum, finished in a baked Sherwood green enamel. According to the manufacturer, the Humidifier vaporizes moisture through centrifugal force at the rate of better than one pint per hour; it uses no steam or heat and draws electric power equal only to a 30 watt bulb. — For literature and further information, Check New Products 488.

WANT INFORMATION? ?

If you do not see a listing in these columns of products or services you are interested in write "Buyers' Directory", 7720 Sheridan Road, Chicago 26, Illinois, for such information. It will be furnished quickly and without charge.

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Please forward complete information on the following products and services described in the Feb., 1953 issue of TELEPHONE ENGINEER & MANAGEMENT. (Check information desired.)

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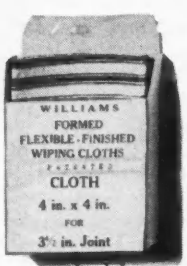

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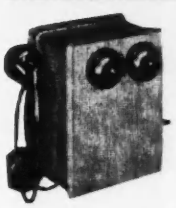

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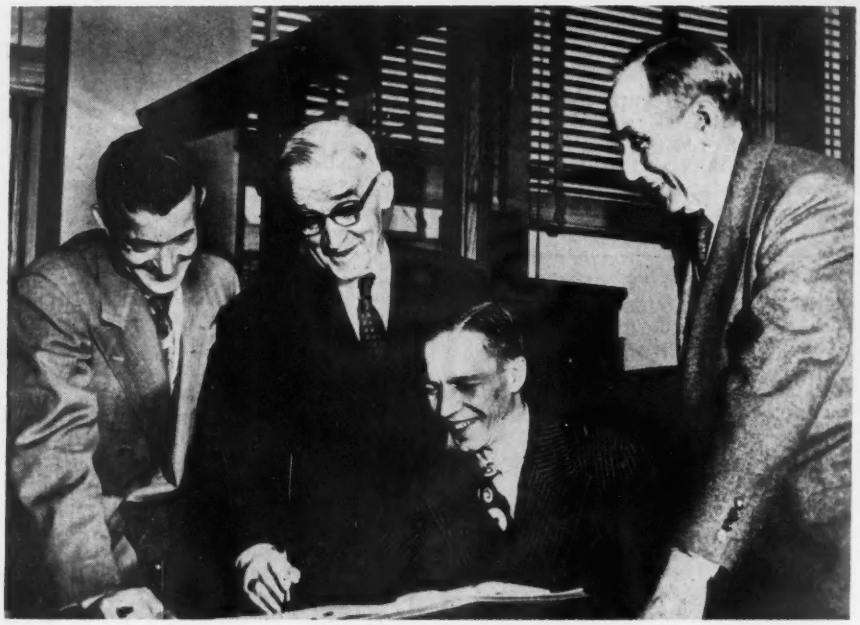


Two promotions have been announced by American Electrical Heater Co., Detroit, Mich., manufacturer of American Beauty electric irons. Elevated to general sales manager is RICHARD G. ELLIS, extreme right in photo above. Mr. Ellis has served his company for 34 years as district sales manager on both West and East coasts. JOHN A. THOMPSEN, extreme left in photo, has been appointed assistant general sales manager. He was formerly factory sales representative for American Beauty in Southern California. Prior to that he was associated with Northup Aircraft in Los Angeles and Boeing Aircraft in Seattle. Conferring with Ellis and Thompsen above are ROBERT A. KUHN, president, seated, and WARD SCRANTON, executive vice-president of the firm.

(Continued from page 89)

may set a new pattern for sales conferences, especially when used in conjunction with a real sales situation as set up with the Westfield firm on Friday, January 16.

Activities on Friday, last full day of the conference, were conducted with a banquet at 7:30 p.m., with addresses by company president R. C. Tait and account executive Neil A. Gallagher, of the Rumrill Advertising Agency. The final morning sessions were devoted to policy discussions, announcement of sales quotas, and final remarks at noon by Mr. Gibson and Mr. Thompson.

J. E. Albert Opens New Consulting Service

J. E. ALBERT, engineering and general consultant to the utility industry, has recently returned to active practice following his recovery from an extended illnes. His new office is located at 185 North Wabash Avenue, Chicago.

Prior to World War II Mr. Albert was for many years vice president & general manager of the Associated Public Utilities Corp., Columbus, Ohio, which operated telephone and water properties through the midwest and on the west coast. After five years of service with the Air Force he located in Chicago, devoting much of his time to work involving the financing, purchase and sale of telephone and other utility properties including preparation of the necessary reports. He expects to continue this work along with a general consulting practice.

M. A. Cook Retires From Sloan, Cook & Lowe

ANNOUNCEMENT has been made of the retirement of Maynard A. Cook, well-known in the telephone industry through his association with the firm of Sloan, Cook & Lowe, Consulting Engineers at 120 South La Salle Street, Chicago. Except for intervals, such as during his service with the Communications Division of the War Production Board, he has been continuously associated with the present firm or its predecessors for the past 40 years.

Coincident with the announcement of Mr. Cook's retirement, Messrs. Sloan and Lowe, remaining partners, announced the admission to the firm of E. Dean Clark and John E. McCauley, who have been associated with them for many years. The new partnership will continue to operate under the name of Sloan, Cook & Lowe at the same office location.

STROMBERG | CARLSON

transmitter

Published by the makers of famous XY Equipment

VOL. 1, NO. 11, FEBRUARY, 1953

Setting the Pace in the Suburbs

Donald Davison points out features of the new XY equipment to his wife.

Donald Davison, President of the Ogden Telephone Company, was the most relaxed person present on Sunday night, January 4, as he greeted friends who came to watch him cut over his third exchange of Stromberg-Carlson XY Dial Equipment. This small but expanding company is on the western fringe of the great Rochester Telephone Corporation, serving villages which have lately become popular as commuting centers. One quarter million dollars have been invested in plan improvements over the last 4 years.

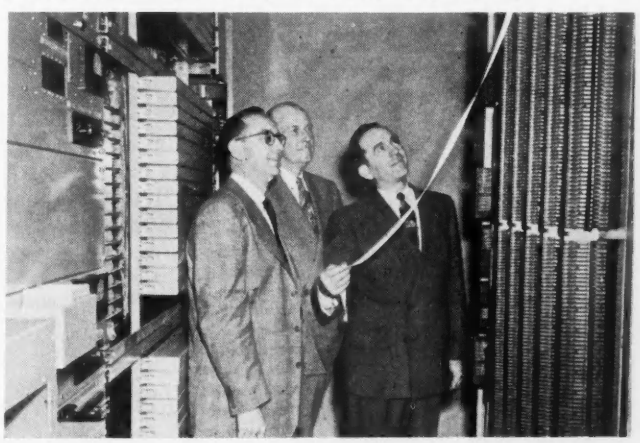
Mr. Davison has used imagination in his plans for increasing revenue by giving the unusual in service. One example is his installation of a Stromberg-Carlson No. 121 PBX Switchboard in Kirby's Motel on a nearby trunk highway. Each cabin is equipped with its own telephone; guests relax in complete privacy as they make appointments for the next day in the city, report to the distant home office, or just ask about the menu from the dining room.

In one of his exchanges the students of a small college are constructing a factory building, to provide income (from rent) for the college and also future part-time jobs for the students. Mr. Davison has already brought his cable to the nearest pole; when the tenants move in, telephones will be waiting for them.

Don Davison started in the telephone business twenty-five years ago. After four years' experience with the Bell Company, he bought his first exchange in central New York. When he came to the Ogden Telephone Company in 1941, there were 720 stations; the manual board had two and one-half positions. Today his territory comprises the three exchanges of Hilton, North Chili, and Spencerport, New York, with 3,000 stations on December 31.

(*Please turn page*)

Mayor Merz of Spencerport cuts in the XY Dial service. Watching are Mr. Davison and T. C. Thompson, of Stromberg-Carlson.



The former manual switchboard has been converted to a modern toll board, equipped for Operator Nationwide Toll Dialing.

Wire Chief Clifford Lane (left) likes the efficient test turret for routining dial equipment.

Each individual cabin (right) in this motel is equipped with its own telephone.

(below) A Stromberg-Carlson 121 PBX provides local and long-distance service.

What he has accomplished by sound management and keeping up with trends can be done by other small independent companies with equal courage and foresight.

The Ogden Telephone Company was one of two companies selected as typical of the independent industry by the USITA Toll Compensation Committee, for a study of percentage of toll revenue being returned to local connecting companies. Now that the entire Ogden Company's local service is XY Dial, Mr. Davison can give his full attention to even better operation of his toll facilities. With this in mind, he has equipped his toll board with the most modern type of operator toll dialing equipment, ready for the time when this can be utilized in the area.

XY Customer's School Reopens – Army Represented

The U. S. Army Signal Corps has sent nine representatives to the present Stromberg-Carlson XY Training School now in session. Also, seven independent telephone companies have selected men in supervisory posts to receive the instruction in XY Operation and Basic Maintenance. In the photograph, reading from the left:

First row: Bryan Woolverton, Signal Corps, P.E.A.*, Washington, D.C.; Melvin Frerking, Looking Glass Prairie Telephone Co., Mascoutah, Illinois; Bechtel Winger, Sweetser Telephone Co., Sweetser, Indiana; Frederick Stevenson, Ohio Telephone Service Co., Sidney, Ohio; Truman Brown, Western Reserve Telephone Co., Hudson, Ohio.

Second row: Harold Haynes, Mt. Pulaski Telephone Co., Mt. Pulaski, Illinois; Reginald Stewart, Ilwaco Telephone and Telegraph Co., Ilwaco, Washington; Benjamin Savage, Signal Corps, P.E.A., Washington, D.C.; James Leach, Signal Corps, P.E.A., Washington, D.C.

Third row: Robert Riddle, 2nd Army, Hdqrs. Signal Section, Ft. George G. Meade, Maryland; Donald Layden, Signal Corps, P.E.A., Washington, D.C.; Sgt. Brutus Wright, Signal Corps, P.E.A., Washington, D.C.; M/Sgt. Kenneth Thorton, Signal Corps, P.E.A., Washington, D.C.

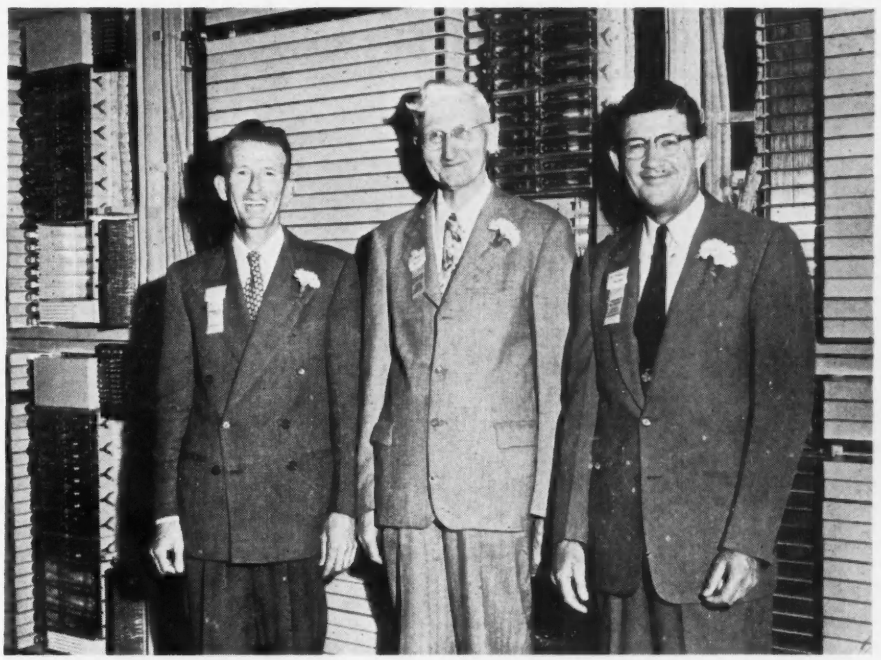
Standing: Henry Sheve, Government Contracts Division; Robert Siebert, Engineer in Charge of Test Laboratory; John Voss, Chief Telephone Engineer; Arthur Gibson, General Manager, Telephone Division; Truman Thompson, Sales Manager, Telephone Division; George Killian, Test Engineer-Instructor. All of Stromberg-Carlson Company.

Not shown: William Tisdale, Farmers Telephone Cooperative, Kingstree, South Carolina; Edward Bower, Signal Corps, P.E.A., Washington, D.C.; W. E. Billington, Signal Corps, Ft. Sam Houston, Texas; Howard Otterbacher, Apparatus Engineer-Instructor, Stromberg-Carlson Co.

* *Plant Engineering Agency*

STROMBERG-CARLSON transmitter

Big Step Forward for Progressive Florida Corporation



The Wettsteins of Ocala. (l. to r.) Max E. Wettstein, Executive Vice President; Otto Wettstein, Jr., founder and Chairman of the Board; Otto Wettstein III, President of the Florida Telephone Corp.

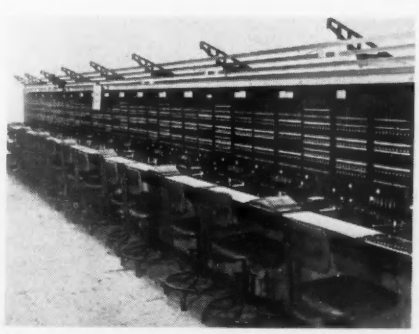
The citizens of Ocala, Florida, have been enjoying the benefits of Stromberg-Carlson XY Dial telephone service since early in December.

Few are left who remember the early days at Ocala, when the "night boy" plugged up calls *if* the alarm bell waked him from sleep. But most subscribers remember very well the difficulty in obtaining a new telephone or finding relief on crowded party lines, as Ocala grew from a small town to a large city. Now they have a telephone exchange which will meet their needs for many years to come; both they and the telephone company are happy!

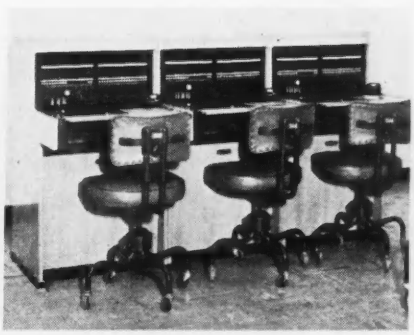
The Wettstein Family — Otto Jr. and his two sons — have made a specialty of the very thing which has been accomplished at Ocala. While the original Ocala Telephone Company was being incorporated in 1894, and the Stromberg-Carlson Company was being founded in Chicago, Otto Wettstein acquired his first interest in a telephone company in Illinois. When, after many years of successive rehabilitation and extension of operating area, Mr. Wettstein sold his 29 exchanges in the Midwest, it was only to transfer his organizing genius to a new setting in the rapidly growing section of northern Florida.

The Florida Telephone Corporation has seen phenomenal growth, from 5,195 stations in 1930 to 22,757 stations in October, 1952. The Ocala exchange has doubled over the last 7 years — trebled in the last 12 years! The increase left all estimates far behind, and every indication points in the direction of continuing expansion in station requirements — a principal reason for the selection of XY Dial equipment for this office.

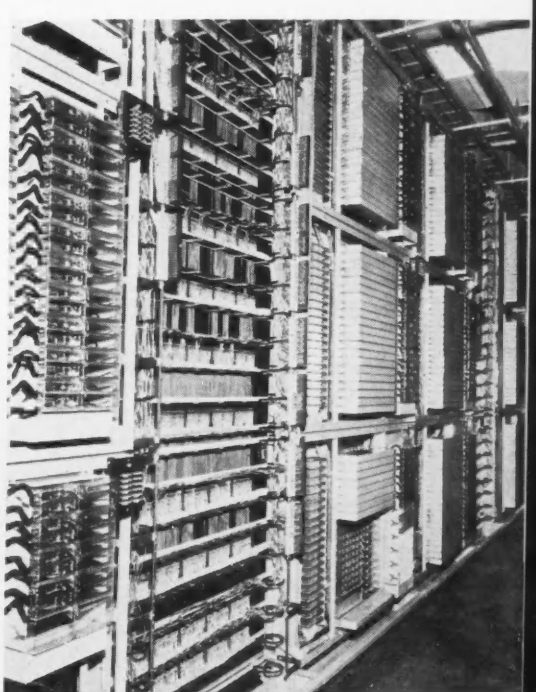
With Mr. Wettstein's two sons — Otto III, President, and Max E. Wettstein, Executive Vice President — at the helm, the citizens of northern Florida served by the Florida Telephone Corporation may look for continuing progress toward the eventual goal — the very best in modern telephone service over the entire area.



Ocala's 14-position No. 3 toll board, equipped for nationwide intertoll dialing.



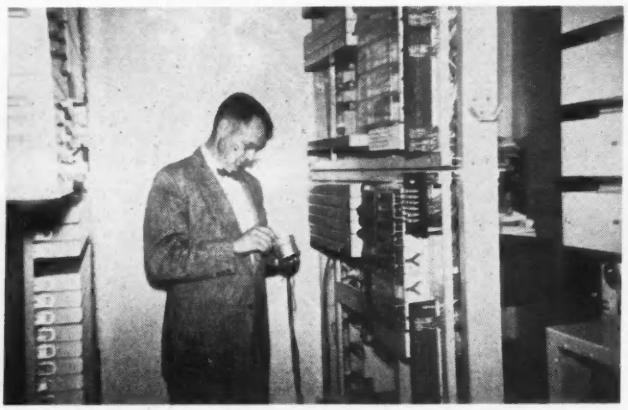
Latest type Stromberg-Carlson rate, route and information desks.



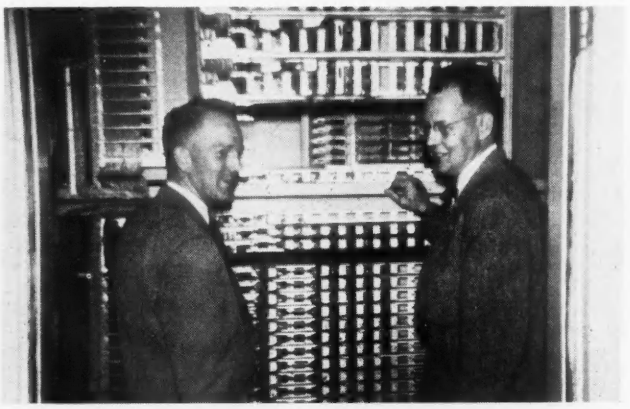
Typical bay in the XY equipment room, showing one of the grading panels.

STROMBERG-CARLSON *transmitter*

CANDID CAMERA CATCHES CONTENTED CUSTOMERS



George McBride, District Manager for the West Coast Telephone Company at Brookings, Oregon, dials a test call.



Fred McGrady, Stromberg-Carlson representative, and Mr. McBride check operation of additional XY circuits.

Brookings, Oregon, Makes XY Addition

George McBride, District Manager of the Brookings (Oregon) Exchange, has a right to be proud of the progress he has fostered.

Prior to 1919 the only telephone service available to the citizens of Brookings was over a grounded party line stretched between Brookings and the neighboring city of Gold Beach. Transmission over the line was very poor and it was often necessary for the Gold Beach operator to relay messages to the next community. The first step to improve the telephone service in Brookings was taken during 1919 with the installation of a ten-line magneto switchboard serving a total of 32 subscribers.

With development of agriculture and the lumber industry, Brookings has enjoyed a steady growth through the years and today is one of the fastest growing communities on the West Coast. Installation of a Stromberg-Carlson XY Dial system in Brookings was first made in 1950. Subscriber satisfaction has led to increased demand for service and a sizeable addition to equipment recently.

MADISON TELEPHONE COMPANY
BETHALTO, ILLINOIS

S. J. KLINGEL, MANAGER

December 16, 1952

Mr. Martin Holluyt
Stromberg-Carlson Company
564 W. Adams Street
Chicago, Illinois

Dear Marty:

Here are the facts, figures and fotographs pertaining to our Bethalto exchange requested in your recent letter.

The cutover to XY operation was made on December 28, 1951 at which time 368 working lines serving 838 subscribers were cut into service. The original equipment was wired for 500 lines and equipped with 400 lines. Now after one year we have installed 40 additional lines making a total of 440 lines equipped and have a total of 916 subscribers.

During this period we have had only eight cases of trouble traceable to switch equipment, all of a minor nature, and without any service interruption.

This, we believe, is excellent performance and more than warrantsthe confidence we had placed in it.

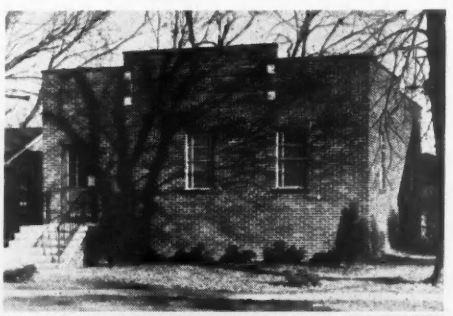
Yes sir, XY is ace high with us.

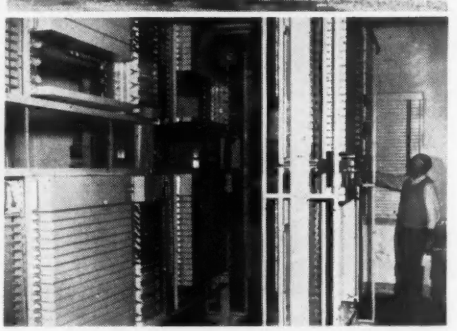
Yours very truly,

S. J. Klingel

Ho - Hum!

Nothing to do! "This," says Mr. Klingel, "is the way to run a telephone exchange. Maintenance and muscle tone have reached a new low since installing XY."





(Top) This handsome building houses the new Stromberg-Carlson XY Dial equipment of Bethalto, Illinois.
(Below) Mr. S. J. Klingel, Manager, gives his new equipment a quick once-over.

STROMBERG-CARLSON transmitter

MEET Robert Dobbin

Robert "Bob" Dobbin is a quiet man, who is more interested in getting things done now than talking about what he will do in the future. His responsibilities as Assistant Chief Telephone Engineer are heavy—one big asset in meeting them is the mutual respect he holds for his associates and they for him.

Bob attended Lake Forest College in Illinois, where he majored in Physics and Economics. After graduation he entered Purdue University for post graduate work.

Radio and particularly the challenge of acoustics in this field attracted him first. He joined the Jensen Radio Manufacturing Company as loudspeaker design engineer. Later he worked for the United States Gypsum Company and the Celotex Corporation as an acoustical engineer, designing sound absorbing materials. This experience proved helpful during the war years, when Bob did civilian work at Belmar, New Jersey, in the Signal Corps Engineering Laboratory.

In 1946, Bob came to Stromberg-Carlson where he was assigned to loudspeaker design. Because of his experience in the design of voice transmission components and circuit requirements, he was transferred to the Telephone Division as Engineer in Charge of Telephone Apparatus. In 1949 he assumed further responsibilities as Assistant Chief Telephone Engineer.

Bob married his college sweetheart, Marion Phipps in 1937, and is very proud of Lynn, his seven year old daughter. Bob and his wife both enjoy sailing a "Star" class boat and gardening.

THE APPARATUS ENGINEERING SECTION

Whether or not you have met these men personally, they feel acquainted with you and your operating conditions. Have you wanted to know the limits within which harmonic ringers will function properly; interchangeability of jacks, keys and plugs; how to get maximum service from XY switches or dials; or special cams to be added to your interrupter machine? These men provide the answers.

"How does your program originate?" we asked Bob Dobbin, Assistant Chief Telephone Engineer, in charge of the Apparatus Section.

"First, the development of telephone instruments is completely handled in this section. For instance the 1400 Telephone and the "A" Type Relay were brought into being by Louis Droel and his design group. Second, we must provide the components as required by Systems Engineering — XY Switches, dials, toll recorders and the like are prepared for production by Fred Van Almelo's design group."

Further questions revealed that a third group is largely concerned with problems of transmission. All groups pool their efforts on new developments and special projects as they arise.

Bob Dobbin explained that much use is made of a well-equipped model shop, as well as the physical testing laboratory, the materials laboratory and the telephone engineering test laboratory. Here all new parts and apparatus receive tests equal to or greater than those normally met in the field.

One major assignment of the Apparatus Section is close liaison work with the manufacturing divisions; many good suggestions for improving the products come from the skilled workers in the shop.

Exploratory development with new products or improved methods is constantly going on, with the view toward better, more serviceable telephone equipment for the years ahead.

Rear: Milton Edelman, Charles Krieger, Ted Kucharski. Front: Herbert Abells, Gilbert Dole, Louis Droel, John Kennedy.

Louis Droel

Fred Van Almelo

Louis Droel's telephone career began with Automatic Electric Company as a trainee, soon moving into inspection, the Engineering Test Laboratory and the Design and Development Laboratory. He left to join International Business Machine in the design of relays and business machine components. Coming to Stromberg-Carlson in 1946, he is now leader of the design group responsible for telephone instruments and relays.

Fred Van Almelo had 22 years' experience in the design and development of small electrical apparatus before coming to Stromberg-Carlson in 1945. During World War II he worked with our Electronics Division and the Hazeltine Company in the development of radar equipment. After the war, he was made a group leader in the Apparatus Section. Fred holds many patents on electrical apparatus which he has designed.

L. to r.: Howard Otterbacher, Anthony Michniewicz, Fred Van Almelo.

L. to r.: Edson Hineline, Alfred Codd, Victor Rodek, Arthur Howell.

STROMBERG-CARLSON **transmitter**

FACTORY TRIP

In the last three months we have gone behind the scenes in the Stromberg-Carlson factory, watching skilled operators building up the essential elements of the XY system. This month your TRANSMITTER editor, George Forbes, shows you the assembly of the exclusive Stromberg-Carlson Vertical Multiple Wire Bank.

Nickel silver wire from 60-pound coils is fed through this straightener to remove curves and kinks.

Selden Brown, who has fathered the production of this critical item, working with Joseph Braun of Production Engineering, Ellis Stanford of Tool Design and Ted Wharton of Apparatus Engineering, picked up one of the Wire Banks.

"You see," he told me, "each of these 22 nickel silver wires is .04″ in diameter with a 3/10,000 tolerance. It is fed from the original coil through a machine which straightens it to within .010″ over a four foot length."

The figures left me a little dazed, until I remembered how these round wires, with their smooth non-wearing surfaces, establish the proper line connection with the XY Switch wipers — each wire being in exact relation to the travel caused by a number dialed.

We watched the pointing of one end of the straightened wire, which was then cleaned and fed with 10 others on a chain belt through phenolic separators held in position under air pressure.

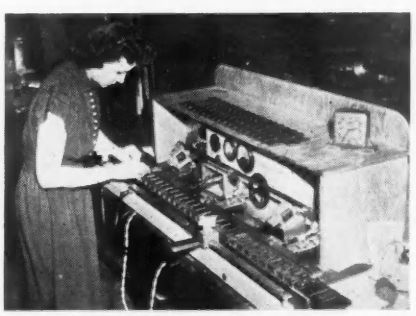
Phyllis Kilbourn continued the operation, turning over the partially completed wire bank to repeat the process for the other eleven wires. To insure rigidity under operating conditions, the separators are cemented by thermo-setting cement. 120 Amperes are shot through the wires, causing the cement to kick over partially and lock the separators.

William Rowell, group supervisor, showed me the final baking process, after which the wire bank is ready for inspection; mechanical, for spacing of separators and straightness, and electrical, under extreme load, to insure against possible breakdown.

Ivan Benedict, Department Supervisor, has been especially pleased that the production methods worked out several years ago have been equal to the heavy schedule requirements of present orders.

"When they know how carefully we have to check dimensions and tolerances on our fixtures," he said, "it's no wonder people prefer these wire banks to soldered connections."

Applying cement to one side of the spacers to bind them to the wires.



Gaging and applying heat cycle to kick over thermo-setting cement.

Inserting spacer plate which controls location of wire bank separators, prior to driving home second set of wires.

Handling REA Sales Engineering

To better serve the specialized needs of telephone cooperatives organized under the terms of the Rural Electrification Administration, a separate group has been organized within the Sales Engineering force at Stromberg-Carlson, working under the direction of R. O. Hoffman, Chief Sales Engineer and T. C. Thompson, Sales Manager.

Joseph Ottalagana, closely associated with dial systems development since its beginning, heads the group; Sherman Weiner, who has had considerable field experience as installer and service engineer, is his assistant.

Typical of the type of installations being serviced by this department is an equipment order for four Stromberg-Carlson XY Dial exchanges in the Brandenburg, Kentucky, area and another network of six new Stromberg-Carlson XY Dial exchanges for the Daviess-Martin group in Indiana.

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"Never so Good"

DURING THE last election we heard this expression many times, "*You never had it so good*" . . . Well, going back a few years, say as far back as 1910, we sometimes wonder.

Running across an old account book of my grandfather's, I found such entries . . . $1.00 per day wages, six days a week. He worked in a furniture factory and raised five children on his salary. Sometimes the boss did not have enough cash on hand so a sack of flour was taken as wages at $1.05. Of course no income tax, social security, or old age benefits. Beer was $1.00 per case or $1.00 for 1/8 of a barrel.

The old cook stove served for cooking and heat. Kerosene lamps were used for lighting, finally they put in gas for cooking and above the gas stove, about four feet, was a gas lamp which gave off light, and the gas bill was always $1.00 per month. They also had a horse, chickens and a couple of pigs. In those days the kids had no such things as footballs or rubber balloons. November was hog butchering time and it was customary to save the bladder from the pig, which after being dried out served as a football.

Coffee was selling around 15¢ a pound, which was quite high in those days, so to make it go farther a few sticks of chicory at 5¢ was kept on hand. A little of this was shaved off and added to the coffee, making it stronger and less coffee was used. Inside plumbing was unheard of so they used the little house out in back and it was quite chilly out there at 20 or 30 below zero. When you went to the meat market the butcher usually gave you a soup bone or a pound of liver free. Finally electricity came along, one lamp to each room, and that really was class. The light bill was never over $1.00 a month. Hard coal heaters were used in the living room. The upstairs had no heat so instead of blankets they had feather ticks. These were made of light weight material and stuffed with duck feathers making them very light in weight and warm.

Saturday was bath day and the wash tub was placed in the kitchen serving the purpose very nicely. When we went to buy a suit the merchant always gave us a pair of suspenders, belt, cap or something free. When you had to travel, and there were no taxi cabs, a horse from the livery stable could be hired for $1.50 per day.

So all in all when you compare the old days with the present, "*You never had it so good.*"

"Smile When You Say That"

SURE, WE TALK plain old American most of the time—but folks outside the telephone business may be confused by our shop talk now and then—and no wonder, comments the *Southwestern Telephone News.*

Generally, a *piker* is a fellow who does things in a small way. But on a construction crew he does things in a big way. He helps set telephone poles with a tool called a *pike*, which isn't a fish but a pole with a spike in the end.

A *spinner* on the end of a fish wire will lure no bass. A *spinner* is a gadget invented by plant people to lash cable. And a *fish wire* is a steel wire used to pull cable through conduit.

A construction man doesn't use a *butting board* to bat his brains out. He uses it to set telephone poles. It's a board he holds at the edge of the hole to steer the pole into the ground.

Much of our lingo started from the type of work people did. A *grunt*, instead of being pig talk, is a groundman in a construction crew. Before mechanical hoists came along, the groundman did most of the heavy lifting. Hence, the grunt.

The *gin* man wasn't an alcoholic. He's the fellow who handled the gin pole, which was a brace for telephone poles. The gin pole was also called a *muley-cow*. Why, nobody seems to know.

We may hear talk of *barking dogs, tub mates* and *patch boards*. A barking dog isn't an upset pooch. It's a gimmick that sends out impulses over a wire to spot trouble. And a *tub mate* isn't someone who joins you in a bath. It's a co-worker at a tub file, a filing cabinet built like a square tub on legs. A *patch cord* won't help on a torn *sleeve*. A *patch cord* is a gizmo used at PBX's to hook up conference calls or to rig a switchboard so calls coming in from several lines will be routed direct to one telephone. And a *sleeve* doesn't necessarily have French cuffs. It's a metal covering for cable.

Let no one tell you the operator makes out a *skeleton ticket* when a toll call comes over a *phantom circuit*. A *skeleton ticket* is a kind of duplicate ticket toll operators use. And *phantom circuits* are additional pathways for telephone wires plant folks squeeze out of only two pair of wires.

Shapes of things influence telephone talk, too. A *dip*, not the swimming pool kind, is where a cable goes from overhead to underground. New England plant people call this a *siphon*. And a *Johnny ball* is just an iron ball used where two strands of wire are spliced together. The ball keeps the wire from bending too sharply and breaking. No one seems to know where *Johnny* comes from.

Even form numbers inspire some of our jargon. When commercial people say, "Fire me an eighty-eight," they don't mean shoot a German antitank gun. What they want is a company form numbered s-8888.

An outsider might be puzzled by talk of *leg irons*. *Leg irons* aren't the kind that hold a Georgia chain gang together. They're contraptions a lineman straps on his legs and feet to help him climb a pole.

A *heel bolt* doesn't hold your heel on your foot. It's a bolt used to fasten crossarms on a telephone pole. A *flying hitch* isn't a wedding in an airplane. It's an overhead cable that makes a turn with no visible means of support. A *pilot lamp* isn't a lamp that can fly an airplane. It's a light that flashes on when a call comes in anywhere on a switchboard.

Maybe we don't always talk plain American, but isn't it fun to be bi-lingual ?

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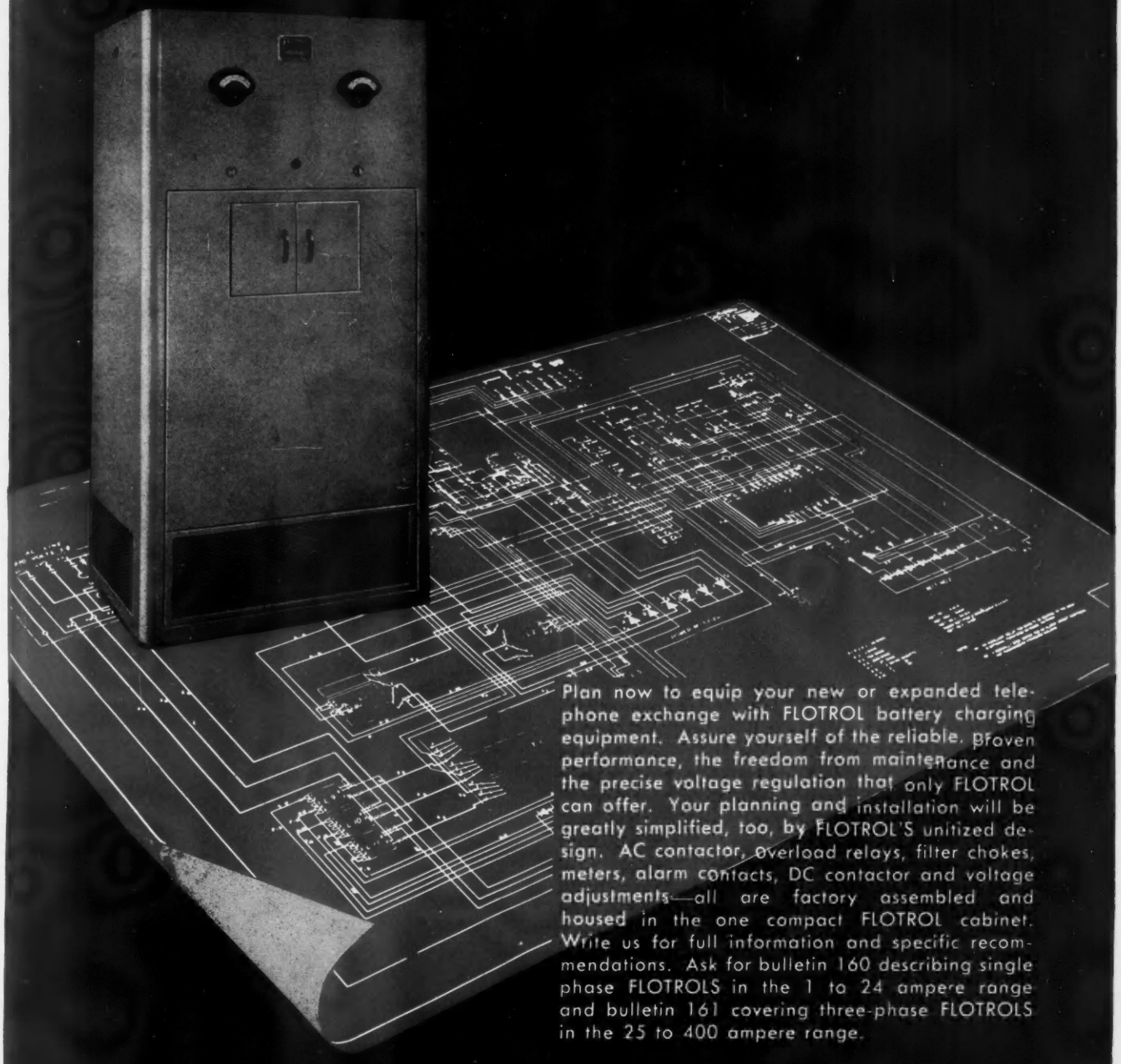

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